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A COMPARATIVE EVALUATION OF TWO MODERN METHODS FOR TEACHING A SPOKEN LANGUAGE.

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AN EXPERIMENTAL COLLEGE COURSE WAS DEVELOPED TO TEST THE EFFICACY OF TWO MODERN APPROACHES OF TEACHING FRENCH. THE EXPERIMENTAL CLASSES USED A TEXT WHICH INCORPORATED THE USE OF AUDIOVISUAL TECHNIQUES FOR MORE COMPLETE CONVERSATIONAL MASTERY. THE CLASSES WERE GIVEN SUPPLEMENTARY MATERIALS AND PRE- AND POST-TESTED ON (1) COMPREHENSION, (2) SPEAKING, (3) READING, AND (4) WRITING DURING 3 EXPERIMENTAL QUARTERS. FOR TESTING PURPOSES, A 5-PERCENT LEVEL OF SIGNIFICANCE WAS CONSIDERED A SIGNIFICANT LEVEL OF QUANTITATIVE DIFFERENCE. EXPERIMENTAL STUDENTS ACHIEVED PRONUNCIATION FAR SUPERIOR TO THAT OF THE CONTROL STUDENTS. SUPERIOR MOTIVATIONAL VALUE OF THE AUDIOVISUAL APPROACH IS REVEALED BY CONTINUANCE FIGURES AND NUMBER OF STUDENTS ELECTING FRENCH AS A MAJOR. IN READING AND WRITING, HOWEVER, THE EXPERIMENTAL GROUP SCORED LOWER THAN BOTH THE CONTROL GROUP AND THE NATIONAL AVERAGE. WHILE THE TEST BATTERY WAS NOT COMPLETELY SATISFACTORY, THE STUDY SUGGESTED THAT THE EXPERIMENTAL TEXT BE REVISED TO ALSO INCLUDE AN AUDIOVISUAL APPROACH TO THE READING AND WRITING OF A FOREIGN LANGUAGE SO AS TO ACCOMPLISH A MORE UNIFORM PERFORMANCE. (PM)

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A COMPARATIVE EVALUATION OF TWO MODERN METHODS FOR TEACHING A SPOKEN LANGUAGE:

FINAL REPORT SUBMITTED TO THE UNITED STATES OFFICE OF EDUCATION, GRANT NO. 745016.09

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TABLE OF CONTENTS

Page

0.

History and Aims of the Project 1
Definition of Terms 3
Acknowledgements 4

1.

Description of the Sample 4
Schedule of Testing 4
Teaching Methods 5
Materials and Procedures 5
"Outside Variables" (Co-variates) 7

2.

Test Batteries 9
Methods of Administration and Scoring 10
Survey Questionnaires 12

3.

Analysis of Relative Achievement in Language Skills 13
Comparison with National Norms 15
Scorers' Reliability 16

4.

Co-variate Analysis 16

5.

Continuance 17

6.

Student and Faculty Opinion Surveys 19

7.

Conclusions 25

8.

Statistical Tables 28

9.

Appendices 62

0. History and Aims of the Project. Definitions of Terms. Acknowledgements.

0.1 In 1956 the Audio-Visual Materials Consultation Bureau of Wayne State University published a French pilot-course designed by Geroge Borglum and his associates. This course attempted to integrate audio-visual aids and manipulative pattern drills into a beginning language course. The audio-visual method, based on Borglum's text entitled Images de France and referred to hereafter as the "experimental" method, has been used for some years in numerous high schools and colleges in the United States. The faculty of the Department of Romance Languages at the University of Washington began to experiment with it during the Fall Quarter of 1957. (The University of Washington operates on the quarter system which divides the academic year into three quarters - Fall, Winter and Spring - instead of two semesters. Our elementary French course extends for three quarters and is numbered accordingly French 101, 102, and 103.) In Fall Quarter 1957 a televised first-year French course was taught by H. L. Nostrand with Images de France; and during Spring Quarter 1958 the experimental method was tried in a regular daytime class of college freshmen. The results obtained on these two occasions seemed to justify experimentation on a larger scale. Accordingly, during the academic year 1958-59 the method was used with three sections of beginning French. (At the University of Washington beginning foreign-language classes are dividied into "sections," each comprising 20-30 students.) The instructors involved in the first quarter of this experiment, Emerson Creore, Victor Hanzeli, and Mary Neubert, worked in close cooperation and made several sporadic attempts to assess the achievement of their students in the various language skills. Soon, however, it became apparent that to achieve statistically reliable results something more than the routine classroom testing was necessary. A need was felt for tests designed specifically to measure the achievement of the students in each of the four language skills (speaking, comprehension, writing, reading). In order to refine the statistical evaluations of the test results, it was considered necessary to include in the testing program a control group of students taught with a different method. A program of this scope was hardly possible with the facilities available. Accordingly, once plans for the testing were formulated, these plans were presented to the Commissioner of Education, U.S. Office of Education, Department of Health, Education and Welfare, as an application for a grant under the provisions of Public Law 85-864, Title VII, Section A. This application was accepted and a grant (No.745016.09) was approved on April 1, 1959.

A preliminary program of experimental testing was undertaken in Winter and Spring Quarters of 1959. The preliminary tests consisted partly of standard national objective tests for the measuring of reading and writing skills and partly of tests of our own design for testing the students' ability to speak and to comprehend the spoken language. The resulting scores were analysed for significance and reliability. While they were found generally satisfactory, their analysis suggested further refinements in test design and improvements in scoring techniques. These improvements were incorporated in the definitive test instrument which was administered during Winter Quarter 1960 and yielded the data which constitutes the core of the present report. Hereinafter "First Run" and "Second Run" refer to the preliminary tests conducted in Winter and Spring 1959 respectively, "Third Run" to those conducted during Winter 1960. Each "Run" consisted of the administration of a test battery after the end of the first quarter of study and that of an identical or very similar battery at the end of the second quarter. We refer to these two parts of each Run as "pretest" and "posttest," respectively.

0.2 The language teaching profession has, since World War II, adopted the aim of audio-lingual mastery as either the primary aim in teaching or at least as an aim of equal importance with other aims. Textbooks, teaching methods, classroom techniques and teaching aids have been adjusted accordingly. The monolingual approach has become one of the most popular, and attempts have been made both to develop audio-visual aids with which to convey to students without recourse to translation intracultural stimuli underlying foreign language utterances and to facilitate oral practice which will supplement the small amount of foreign-language contact possible within the classroom. Research into cross-cultural aspects of applied linguistics has revealed, moreover, some of the inherent difficulties one has to overcome when studying a foreign language. Pattern drills have been devised accordingly in order to accelerate the language-learning process by highlighting for students the basic functional signals operating in the foreign language.

All these attempts: the exclusive use of the target language in the classroom, audio-visual aids, and pattern drills to facilitate the induction of functional grammar, have received varying degrees of recognition prompted by the individual teacher's subjective evaluation of his classroom experience. The effectiveness of these new methods and techniques remains to be tested in a scientific manner, not only in order to convince the teaching profession of their value, should this turn out to be clearly demonstrable, but also in order to point out ways for improvement and further progress. Research along these lines, no matter how limited in scope, is significant to the entire field of language education. That is why the initiators and researchers of the present project decided to conduct their investigation in such a manner as to cover not only the evaluation of the experimental method, but also to examine and to include in the present report any corollary findings which might improve the experimental method and contribute in any manner to further development of language teaching in a "new key."

Since absolute standards of achievement for the individual skills involved in the use of foreign languages are, though much needed, still in the early stages of development, the only possible way to evaluate a language-teaching method is to operate with relative values and to test the achievement of students taught with one method against that of students taught with another. The present project featured tests of such a nature. It was assumed from the outset that since the main objective of the experimental method is the development of the audio-lingual skills, the control method should also be one having this primary objective. There would be little or no point, we felt, in testing a method leading to oral proficiency against a traditional one having reading and formal grammar as its primary goals. But since for the achievement of its goal the experimental method relies on the integration of audio-visual materials with the entire language content of the course, and since it also relies heavily upon pattern drills, it was felt that the control method should be one which, while emphasizing the spoken language, did not make use of these particular procedures. Thus it was decided that the control sections would use the revised edition of Basic Conversational French by Julian Harris and André Lévêque (Henry Holt and Co., 1958). The method embodied in this text, while somewhat eclectic in approach, emphasizes the use of the spoken language in the classroom, without, however, employing rigorous pattern drill or integrating visuals into the course.

In addition to the tests of student achievement, we also assembled data on certain matters which entered into the evaluation of the method in question. In all experimental and control sections, the University of Washington Testing Bureau conducted student opinion polls the results of which were used to determine the effectiveness of the instructors' teaching in the various sections. A second student opinion questionnaire of our own design was also administered to all students tested in order to elicit specific information on their reaction to various aspects of the two methods involved. A nation-wide faculty opinion poll was taken among those college and high school teachers known to be familiar with the experimental method. Finally,a file was kept to indicate to what degree experimental and control students continue their study of French beyond the first-year level.

0.3 The core of the present report is divided into seven major units, numbered 1 through 7 and subdivided into paragraphs and clusters of paragraphs with further decimal identification. At the end the reader finds statistical Tables (8) and Appendices (9). The latter include test scripts, questionnaires, etc. used in the project. The numbering of divisions 8 and 9 is discontinuous in order to facilitate cross-referencing. Thus for example, statistical data pertaining to 1.3.1 of the text are numbered 8.1.3.1 ; appendices pertaining to the same are found under 9.1.3.1.

Throughout the following text the words "significant" and "significance" will be employed as verbal expressions of quantitative differences in a strict statistical sense: whenever two samples yield values whose difference is so large that it would occur less than 5 percent of the time had the two samples been drawn from the same population, this difference will be called "significant"; in other words, "significant" differences are only those which can be accepted with a high degree (95 percent) of confidence.

0.4 An expression of sincere gratitude is due to the US Office of Education for its financial support and to the University of Washington for the use of its facilities, especially the language laboratory. Our work would not have been possible without the full cooperation of all the faculty members of the Department of Romance Languages and Literature, University of Washington, who taught the experimental and control sections. Miss Naida M. Dostal, Chief Evaluator of the Modern Language Audio-Visual Research Project, Wayne State University, Detroit 2, Michigan, gave us valuable help in tabulating the responses to the faculty opinion survey. Tables under 8.2.3 are due entirely to her work. An especially valuable collaborator in the project was our research assistant, Mr. Robert Dial, who, under the guidance of Dr. William Meredith, our consulting statistician, not only performed the computations involved, but participated in the establishment of test designs and helped in the evaluation and interpretation of the findings. The statistical tables of the present report are due exclusively to Mr. Dial. Professors H. L. Nostrand and Sol Saporta of the Department of Romance Languages of the University of Washington read the preliminary draft of the present work and offered many valuable suggestions; Miss Mary Neubert helped to edit it with great skill and care.

1. Description of the Sample. Schedule of Testing. Teaching Methods, Materials and Procedures. Outside Variables (Co-variates)

1.1 The great majority of the freshman students at the University of Washington begin their elementary language study in Fall Quarter (French 101). Most of them continue in Winter Quarter (102), but, for various administrative reasons, there is a considerable drop-out at the end of this quarter so that in the Spring Quarter the enrollment in French 103 is relatively low. It was therefore decided that the samples would be taken from 102 classes at the beginning and at the end of the second quarter. In this way, we were able to measure the students' progress at the end of the first quarter of study and again at the conclusion of the second quarter. Thus, although the official starting date of the project was April 1, 1959, testing actually began earlier in the same calendar year, at the beginning of the Winter Quarter.

Students who enrolled in the language class sequences from which our samples were drawn did so without previous knowledge of the method - experimental or control - to be used in any particular section (see 6.1.0). Once enrolled in one method or the other they were encouraged to remain with the same method for their subsequent classes.

1.2 First and Second Run achievement tests were administered to 75 experimental students and 125 control students. After eliminating the scores of students who had crossed over from experimental to control or vice-versa, those who transferred French credits from high school, and those who for various reasons did not take either the pretest or the posttest, we obtained complete achievement data for 62 experimental students and 58 control students. Tests were administered in a similar manner on the Third Run. This time the sample comprised 55 students taught with the experimental method and 40 students taught with the control method.

1.3.1.1 The teaching method used in the experimental sections was that appropriate to the audio-visual course embodied in Images de France with its accompanying drills and slides. However, since it was felt that this course, centered on audio-lingual activity, did not include materials which lent themselves to the development of the reading skill, reading texts were added as listed below. At no time, however, did reading replace or displace the use of the audio-visual materials.

1.3.1.2 The principal text used in the experimental sections throughout the period of experimentation was: George Borglum, Jacques Salvan, and Theodore Mueller, Images de France: An Audio-Visual Course in Beginning French (Detroit: Wayne State University, Audio-Visual Materials Consultation Bureau, 1956.

In addition, a set of dittoed "structure sheets" prepared by Victor E. Hanzeli from grammatical materials provided in the Teacher's Guide (see below) was used in 1958-59 in place of the grammatical presentation of Images de France which seemed insufficiently detailed. These sheets were replaced in 1959-60 by Theodore Mueller and Edgar Mayer, La Structure de la langue française (Gainesville: University of Florida, Foreign Language Department, 1958).

The readers introduced in French 101 (in 1959-60 only) were: Keating-Moraud, Audubon and Lafayette (Cultural Graded Readers, French Series: 1 and 2 [Elementary]). (New York: American Book Co., 1958.) In French 102 (in both 1958-59 and 1959-60): Sait-Exupéry, Le Petit Prince, educational edition by J. R. Miller (Cambridge: The Riverside Press - Houghton-Mifflin, 1946).

All the above materials were purchased and used by the students.

The following materials, not purchased by the students, formed an important instrument for their classroom work and preparation: a set of color transparencies (35 mm. slides) provided by Wayne State University and integrated with the lessons of Images de France, a Teacher's Guide providing a script for the slides and various exercises to be used in conjunction with them, and a set of prerecorded magnetic tapes, one for each lesson of Images de France, providing pattern drills for students' use in the language laboratory.

1.3.1.3 The work of the first quarter (French 101) consisted of *Images de France*, Lessons 1-18; Keating-Moraud, *Lafayette*, for reading and discussion in class, and *Audubon* assigned for home reading. In the second quarter (French 102): *Images de France*, Lessons 19-30. *Le Petit Prince* was used for both class and home reading. In French 101 about two lessons of *Images* were covered per week; in 102, one or two lessons per week.

Each lesson of *Images* was introduced by the teacher, using the foreign language almost exclusively. Ordinarily one lesson occupied two class hours. The utterances produced by the teacher were repeated by the students in chorus and/or individually. This initial presentation was followed by an explanation of the new points of structure in the current lesson, and by relevant pattern drills accompanied by a second showing of the slides. Finally teacher and students read aloud the text of the lesson in *Images de France*. These activities filled one class hour. Before the next meeting of the class, the students drilled with the tape for the day's lesson in the language laboratory. They were required to attend four 20- to 25-minute laboratory sessions per week.

During the second class hour the slides were shown once more, this time with free commentary by the teacher based on the vocabulary and structures of the current or preceding lessons. The students participated in this informal review by asking or answering questions. Next the pattern drills were repeated and the exercises provided in *Images de France* were performed orally.

In handling the reading materials in class, translation was systematically avoided. The reading selections were discussed with the students in French and thus the burden of coverage of the materials was shifted to restatements of the content and answering or formulating questions about it.

1.3.2.1 The principal text of the control course was the revised edition of *Basic Conversational French* by Julian Harris and André Lévêque. This basic grammar text was supplemented by readers in order to provide more material for the development of the reading skill than was contained in the few small selections in Harris and Lévêque. Readings, however, were subordinated on all levels to the development of the audio-lingual skills.

1.3.2.2 Teaching material for control students comprised: *Basic Conversational French*, revised ed. (Henry Holt and Co., 1958), and the following additional readers: In French 101: Keating-Moraud, *Audubon* and *Lafayette* (New York: American Book Co., 1959). In French 102: Bellé and Haas, *Promenades en France*, revised ed. (Henry Holt and Co., 1957).

For laboratory practice a set of prerecorded magnetic tapes was provided, each tape about twenty minutes in length, covering all texts and exercises in *Basic Conversational French*. These tapes were furnished by Henry Holt and Co. There were also nine tapes recorded locally by members of our Department to cover selected lessons in *Promenades en France*.

1.3.2.3 The work of the first quarter (French 101) consisted of Basic Conversational French, Lessons 1-19; Keating-Moraud, Lafayette, for reading and discussion in class; and Audubon assigned for home reading.

In the second quarter (French 102): Basic Conversational French, Lessons 20-33. Promenades en France was used for both class and home reading. As for class procedures, the recommendations of the authors of Basic Conversational French were scrupulously followed (see Introduction, pp. vii-xvii). These procedures emphasized the audio-lingual approach just as extensively as did the experimental method, with the difference that dialogues were used instead of visual aids and some of the exercises included translation. Reading in class was approached in very much the same way as in the experimental sections. Control students attended the language laboratory for the same number of contact hours as did the experimental students, and equal efforts were made in both groups to check and control attendance as required.

1.4. The following "outside variables" were secured in order to insure the homogeneity of the sample and for use as co-variate data.

1.4.1. A student evaluation of the teaching effectiveness of the instructors who participated in the experiment was used as one of the co-variates. A survey was conducted by the Office of Student Ratings of the University of Washington. For statistical purposes the raw scores obtained through that survey were transformed by subtracting the raw scores from five. The resulting mean student survey scores for the two methods were: experimental 3.91 (out of a possible 5), control 3.95, indicating no significantdifference between the effectiveness of the teachers involved in the teaching of the two methods, as judged by their students.

1.4.2 The English Usage Test Score is the raw score obtained by the student on Part 1 of the Educational Testing Service's "Cooperative English Test." (Test No. 343-83-1, Form OM by M. F. Carpenter, E. F. Linguist and W. W. Cook, State University of Iowa; P. G. Peterson and F. S. Beers, University of Minnesota; Geraldine Spaulding of Collegiate Educational Research, Columbia College.) The mean score of the experimental group was 105.51, the control group's 106.48. These figures indicate no significant difference in English usage between the two groups.

1.4.3 The student's Spelling Test Score represents the raw score he obtained on the above test, Part 2. The means obtained were: experimental 21.89, control 21.60. No significant difference in English spelling ability was detected between the two groups.

1.4.4 The ACE (Quantitative) score is the raw score the student obtained on the quantitative portion of the American Council on Education's "Psychological Examination for College Freshmen." (Prepared by the Educational Testing Service, Cooperative Test Division, from materials developed by L. L. Thurstone and Thelma Guinn Thurstone, 1948 edition.) The mean scores for each group were: experimental 46.67, control 46.95. There was no significant difference in quantitative reasoning ability between the two groups.

1.4.5 The ACE (Linguistic) score is the raw score of the linguistic part of the test mentioned above. The mean scores were: experimental 75.91, control 74.65. There was no significant difference in verbal reasoning ability between the two groups.

1.4.6 High school grade-point average was used as another co-variate. The means of the two groups (experimental 2.99, control 3.09, where 4.00 indicates A) indicate no significant difference between the two groups.

1.4.7 The mean high school mathematics grade-point averages were: experimental 2.89, control 2.86. No significant difference was detected.

1.4.8 All-university grade prediction. At the University of Washington each entering freshman is given a battery of tests. The results of these tests, combined with the student's grade-point average in high school, his age and sex, are used to predict his expected grade-point average in any one of thirty-three academic fields, as well as his expected all-university grade-point average. (For a description of this grade prediction system see "Differential Prediction in College Admissions" by Paul Horst, College Board Review, No. 33, Fall 1957. See also his Differential of Academic Success [Mimeographed.] Seattle, Wash.: University of Washington, 1959.) The all-university grade-point prediction was entered as one of the co-variates and the figures indicate the following means: experimental 2.49, control 2.55. No significant difference in academic potential was detected between the two groups.

1.4.9 The foreign language grade prediction, one of the thirty-three predictions alluded to above, was also entered as a co-variate, the scores being furnished by the University's Testing Bureau. The means, experimental 2.78 and control 2.92, showed no significant difference between the two groups.

Since the foreign language grade prediction data we used already accounted for the students' work in foreign languages in the high school, we did not enter the latter specifically among our co-variates.

We thought it highly reassuring for our project to find that out of the nine co-variates selected in order to analyse the homogeneity of the experimental and the control groups, not a single one indicated a significant difference in means between the groups. At this point we were certainly justified in considering the two groups to be essentially homogeneous. Nevertheless, all the above co-variates were entered into our final statistical analysis in order to reveal any possibly significant relationships which might exist between these co-variates and the scores obtained in our achievement tests.

2. Test Batteries. Survey Questionnaires. Methods of Administration and Scoring.

2.1.1 On the First and Second Runs the following battery was used for testing achievement in the four language skills - comprehension, speaking, reading and writing. (Achievement scores are discussed under 3.)

2.1.1.1.1 The test of the skill of understanding the foreign language when spoken was divided into two parts. Part one tested the student's comprehension of the basic grammatical structure of French by means of his identification of structural signals. This "auding test" was designed in the following manner: The students listened to five French sentences, each containing one noun. On an answer sheet they were to check F or M according to whether they judged that noun to be masculine or feminine. Then five more sentences were read and the students had to check S or P for singular or plural. In the next five sentences the students checked P or N-P for present or non-present, indicating whether the verb in the sentence heard was in the present tense or not. Finally, in the last five sentences the students checked PC or N-PC for Passé Composé and Non-Passé Composé. The students' binary choices were then scored for correctness and computed. The vocabulary of these utterances was selected from materials common to the experimental and the control groups and contained only words found to be of very high frequency in the Français élémentaire word-count. (See G. Gougenheim and others, L'Élaboration du français élémentaire [Paris: Didier, 1956].)

2.1.1.1.2 The contextual comprehension ability of the students was tested by means of the "Cooperative French Listening Comprehension Test." (Form A, Cooperative Test Division, Educational Testing Service, Princeton, New Jersey, 1955 [No. 401-01-2].) This test was administered and scored according to the directions of the ETS.

2.1.1.2.1 The test of the speaking ability of the students was divided into two parts. The first consisted of a series of minimal pairs showing phonemic contrast such as sire-sur.

Thirty such minimal pairs, chosen at random from among the very large number of possible minimal pairs in French, were selected in such a manner as to include articulatory oppositions of all sorts and phonemes which have traditionally been considered difficult to realize such as /r/. The question of the students' familiarity or unfamiliarity with the words involved did not influence the selection of the minimal pairs at all. The students took this test in the language laboratory where they were provided with individual listening and recording facilities. Using earphones, they first listened to the minimal pairs and then recorded them, imitating the original as closely as they could. The students' recordings were evaluated by a team of three scorers who either accepted or rejected the students' recording of each individual minimal pair. The scorers concentrated exclusively on the phonemic opposition involved. For example, in scoring the correctness of the minimal pair cited above, sire-sur, they disregarded completely the students' production of the initial and final consonants. The score was negative if a) the opposition was felt not to have been realized (e.g., sire-sire), b) if either of the phonemes participating in the opposition was perceived as the realization of still another phoneme (e.g., sire-soeur), or c) if native speech habits obviously distorted the production of any of the relevant phonemes (e.g., in mer-mèche, the realization of French /r/ with retroflex tongue position). When the students' production was not rejected on any of these three accounts, the minimal pair in question obtained a positive score.

2.1.1.2.2 Part Two of the speaking test was the recording of responses to ten questions which were formulated in such a manner as to include only vocabulary items and structural phenomena familiar to students in both the experimental and the control groups at the end of the first quarter of study. The "style" of some questions was familiar to experimental students; the "style" of others to the control students. Questions six and seven seemed to favor experimental students; questions three, four and five seemed to favor control students; whereas the rest of the questions were judged to be neutral in style.)

The recordings of the students were scored by a team of three scorers who judged the students' responses on a scale from zero to four with four as the highest score. Each answer was scored on comprehension (i.e., comprehension of the stimulus question), vocabulary, fluency, and grammar. And these part scores were added to give a composite score for each answer.

2.1.1.3.1 The testing of the students' achievement in writing and reading was based on the "Cooperative French Test." (Elementary Form R, Educational Testing Service, Cooperative Test Division, Princeton, New Jersey, 1941 [No. 406-14-1], by Jacob Greenberg and Geraldine Spaulding.) This test was administered and scored according to the directions of the ETS.

2.1.2 For the Third Run the test battery was redesigned in the following manner and for the reasons stated below.

2.1.2.1.1 On the First and Second Runs, we obtained mean raw scores indicating little improvement in grammar comprehension during the second quarter, which was contrary to the experience of all classroom teachers involved. Even negative scores of improvement were obtained for certain classes. The lack of validity and reliability of these tests was probably due to the fact that the number of items was too limited and that the responses to be tested (the comprehension of certain structural signals) were influenced by the overall comprehension of each utterance because of the familiarity of the vocabulary. Therefore, for the Third Run, a new set of test utterances was prepared retaining the twenty sentences used in the First and Second Run but augmented by twenty more sentences which concentrated on the same simple structural problems yet used a vocabulary of much lower frequency. These changes were intended to insure a wider spread of scores and, furthermore, to obtain a check into the relationship that may exist between structural comprehension and familiar or unfamiliar vocabulary.

2.1.2.1.2 The "Cooperative French Listening Comprehension Test" was administered at the Third Run without any deviation from the formula of the Educational Testing Service.

2.1.2.2.1 On the First and Second Runs the minimal pairs test yielded mean raw scores which showed that the performance of the experimental students in the audio-lingual skills was superior to that of the control students. However, agreement among the scorers was found to be inadequate and inconsistent, and the original selection of the minimal pairs insufficiently systematic and insufficiently representative of the various oppositions existing in the language. It was therefore decided to administer a similar but improved test during the Third Run with the following changes in the minimal pairs:

Four phonemes were selected arbitrarily: /p/, /r/, /oe/,/ẽ/. The two consonants were paired off, in initial and final positions, with other consonant phonemes of French from which they are separated by only one articulatory distinctive feature. The vowels were paired off with other vowel phonemes of French from which they are separated by only one articulatory distinctive feature; /oe/ was contrasted in final positions only, /ẽ/ in both medial and final positions.

The resulting 32 minimal pairs formed the basis for the testing of the pronunciation of the students during the Third Run in 1959-60. The administration and scoring of this test was performed in a manner identical to that of the previous Runs, the only difference being that, this time, two teams of three scorers each scored the recordings. The first team of three scorers consisted of the same persons who had scored the First and Second Runs; the second, of experts (native speakers) not connected with the University and not familiar with the project at all. This step was taken in order to assure utmost objectivity in scoring. The scores of this second team of outside experts were used as the basis of final evaluation.

2.1.2.2.2 The mean raw scores obtained on the question-answer test, First and Second Runs, indicated that the experimental group did less well than the control group on the pretest but caught up with them during the quarter and surpassed them slightly on the posttest. A frequency graph plotted from the converted (standard) versions of these scores fitted well under a normal curve and scorers' agreement was found to be satisfactory. Nevertheless, in order to try another, perhaps more valid, approach to the testing of the speaking skill, it was decided that, on the Third Run, the question-answers would be replaced by free oral compositions to be recorded. Three subjects were selected for oral composition, on each of which the students were given thirty seconds to prepare and sixty seconds to record. The subjects were: 1) personal information, 2) La France et les Français, 3) description of a picture to be presented visually at the time of the test. The recordings were graded by the same two teams of three scorers each as described above. Scores were given on a zero-through-four sliding scale and a part score was given for the items of: 1) fluency, 2) authenticity, 3) vocabulary, 4) grammar. A composite score was then computed for each composition by adding the part scores.

Because of the different nature of the texts used in the classroom by the two groups, we assumed that the first topic, personal information, would favor the control group; the second, that of making statements about France and the French people, would be equally suited to both groups; the third, description of the picture, would favor the experimental group.

2.1.2.3.4 The "Cooperative French Test" was administered at the Third Run and scored according to directions.

2.2 A special student survey was administered to all students participating in the experiment in order to elicit their reaction in the areas listed below. (Survey results are discussed under 6.1.)

Enrollment in the sample classes. (Question A.)

Students' attitude towards the four basic language skills. (Questions 1 and 10.)

Students' attitude towards the language learning process. (Question 2.)

Students' realization of structural differences between French and English. (Question 3.)

Students' appreciation of French contributions to American civilization. (Question 4.)

Students' sense of achievement in individual language skills. (Question 5.)

Motivation for extracurricular work in French and for continued study of the language. (Questions 6 and 7.)

Students' rating of their accomplishment in the course as compared with that in other college courses and foreign language courses previously taken. (Questions 8 and 11.)

Students' attitude towards the language laboratory. (Question 9.)

Not all questions entered into the questionnaire of each Run. Empty boxes in the appropriate table(8.2.2)indicate the absence of a given question in a given Run. Only questions answered by the Third Run students entered into our co-variate analysis.

2.3 In order to collect pertinent information on teachers' reaction to the experimental method involved in our project, a questionnaire was designed and sent to all teachers who were known to be more or less familiar with our experimental materials. (Results of this survey are discussed under 6.2.) The questionnaire reached teachers working in the high school systems in Detroit, Michigan; Schenectady, New York; Oklahoma City, Oklahoma; as well as faculty members at Wayne State University, Colgate University, University of Florida, University of Michigan, and the University of Washington. A special effort was made to reach not only the instructors who had participated actively in the Modern Language Audio-Visual Project and were thus open to favorable bias, but also all available representatives of institutions where the experimental materials had been used or observed, including a few where these materials had been tried and discarded. The persons questioned were asked to name others known by them to be familiar with the experimental method. With their cooperation we have succeeded in reaching about 75 teachers. Sixty-eight returned the filled-out questionnaire. This number seems to include all teachers familiar with Images de France to any considerable degree.

3. Analysis of relative achievement in the language skills. Comparison with national norms. Scorers' reliability.

The following discussion covers the students' achievement in the four language skills as traditionally distinguished: comprehension, speaking, reading, and writing. Under each skill, scores obtained on individual tests are first discussed and the achievement of the experimental group contrasted with that of the control group. The discussion is summed up by comparing figures representing total "skill scores." Our statements are based essentially on the data obtained on the posttest of the Third Run which was given complete statistical analysis. Data obtained on the first two Runs are occasionally cited in support of what appears as a trend present in the Third Run data but which, however, fails to measure up to the five percent level of significance we set for our statistical analysis.

3.1.1.1 The mean score for the experimental group on the "Listening Comprehension Test" was a total of 21.52, control 20.07. This slight superiority of the experimental group, though statistically not significant, seems to represent a trend which had been detected during the First and Second Runs as well.

It may be relevant to note at this point that the mean scores indicate superior experimental achievement in Parts 2, 3, and 4 of the test whereas the control group scored slightly higher on Part 1. This may be due to the fact that the motor skill of spelling plays a greater role in Part 1 than in any of the other parts of the test.

3.1.1.2 On the grammar comprehension test, the two groups' achievement was found to be almost identical for the combined mean scores of Part 1 and 2. It may be noted, however, that control students scored slightly higher on Part 1 (familiar vocabulary), but that this gain was offset by the relatively higher score of the experimental students on Part 2 (unfamiliar vocabulary). None of these differences, however, emerges as statistically significant.

A comprehension "skill-score" was obtained by a combination of the mean scores obtained on the five parts of the two above-mentioned tests. For the two groups these skill scores are: experimental 51.95, control 47.29. This difference is not significant at the five percent level.

3.1.2.1 As the first test item of the speaking skill, the minimal pair scores showed the following means: experimental 23.9, control 20.7; a statistically significant difference.

3.1.2.2 As for the second item in the test of the speaking skill, the means for the scores obtained on oral composition were as follows: experimental 16.9, control 13.9. This was found to be a statistically significant difference at the five percent level.

The combined speaking skill scores of the two groups were: experimental 55.48, control 42.41. The difference is strongly significant in favor of the experimental group.

3.1.3 The reading skill was measured by the raw score obtained on Part 1 of the Cooperative French Test. The following means were obtained: experimental 19.327 and control 23.550. This difference in mean scores is significant at the five percent level in favor of the control group. Corresponding skill scores are: experimental 48.07 and control 52.67.

3.1.4 For the writing skill the sum of the raw scores obtained on the Cooperative French Test, Parts 2 and 3, was used. This yeilded the following mean scores: experimental 45.48 and control 55.60. This difference is of course again significant at the five percent level.

3.1.5 In summarizing the four skills, it appears that the experimental method teaches the audio-lingual skills better than the control method does. The experimental students' superiority in the speaking skill is demonstrable statistically, whereas in comprehension their higher mean scores are not statistically significant and, at best, represent only a vague trend.

For the skills of reading and writing French, the experimental method proved to be consistently inferior to the control method, as measured with existing national objective tests.

3.2 For the purpose of measuring students' progress, the pretest and posttest scores were not used in the conventional manner, which would have involved, among other things, the subtracting of pretest scores from posttest scores. Instead, we examined and compared differences between the two groups in pretest-posttest correlations. Significant differences were detected only in Parts 1 and 2 of the Cooperative French Test, suggesting that the experimental students' progress in these areas was more rapid than that of the control students. However, the pretest and posttest means of these Parts indicated that the experimental students were at a much lower point on the learning curve than were their control counterparts. Since at a lower point on the curve one would naturally expect a more rapid rate of progress, regardless of method, these differences in correlation coefficients, significant as they may be, have little demonstrable relevance to our evaluation of the methods involved.

3.3 The scores obtained on the Cooperative French Test by the students participating in our experiment were not comparable to the national averages and percentiles published for this test by the Educational Testing Service for the reason that the national figures are based on achievement after a full year of study while our students had completed only two-thirds of a year. In order therefore, to obtain figures which would be comparable, a special test run, referred to in the statistical tables as "Fourth Run," was organized at which the Cooperative French Test was administered to students who had had a full year of French study. This additional sample involved 40 experimental students and 46 control students, all of whom had studied under the particular method for the full year prior to taking the test. The results obtained indicated that the control students scored essentially average on the Cooperative French Test in all parts. Their mean score was actually somewhat higher than the national average for comparable colleges, but allowance should be made for the fact that the majority of them had taken the same test beforehand when participating in the Third Run. On the other hand, however, the experimental students scored significantly lower than the national average in each of the three areas covered by the Cooperative French Test.

3.4 Since the minimal-pairs test and the oral composition test of our own design made use of the subjective judgments of scorers, we were concerned with the reliability of the scores thus obtained. Hence, prior to using the scores for purposes of evaluation, we proceeded to verify the reliability of the scorers' judgments. We compared mean scores given by each scorer for the tests concerned and also analysed how each ranked the 105 students involved. We found that there was a significant difference between the mean scores given by each scorer. It was indeed expected that individual standards of the scorers would be thus manifested.

Such a difference, however, plays no role in the reliability of the graders so long as they rank each student in comparable fashion. To find out if this was the case or not, we put our data to a statistical test and found that the graders were in fact in strong agreement with reference to their rankings. There was a particularly high coefficient of concordance with respect to oral composition; and, in the case of minimal-pairs, we found this same statistic to be significant at the 1 percent level.

4. Co-variate analysis.

4.1 The correlation coefficients between skills are consistently high. This is true within each group as well as within each test run. An especially high correlation exists between the skills of speaking and understanding the spoken word.

4.2 There is a highly significant correlation between the skill scores of control students and the scores they obtained in English Usage and Spelling. The corresponding correlation coefficients for experimental students are significantly smaller, which suggests that skills acquired in one's native language prior to the study of the foreign language are less relevant to progress in the latter when the student is taught with the experimental method than when he is taught with the control method.

4.3 No significant correlation has been found between a student's rating of his instructor and that student's achievement in the language skills. In other words, the fact that an instructor received high student ratings was not reflected in the achievement of his students. Assuming then that the ability of the teacher should be reflected in his students' achievement, we must conclude that the student ratings we used as a measure of the teachers' ability were not valid.

The correlation between high school grade-point average and skills acquired in French is very high for both the control and experimental groups. The correlation coefficients obtained for high school mathematics grade-point average and language skills acquired fail to reveal any essential correlation.

The correlation coefficients between all-university and foreign-language grade predictions and language skills acquired are very high, actually the highest, on the average, of all the correlations obtained. These grade predictions, therefore, may be considered a valid basis for establishing homogeneity in experimental and control groups for future studies on the college level.

4.4 With respect to correlations between responses to the student questionnaire and skills actually acquired, we found that, on the whole, the students were unable to evaluate with any accuracy their own achievement in any of the four language skills. There is also little or no relationship between the way they evaluate the course, the language laboratory, and the relative importance of the foreign language skills on the one hand, and their actual performance on the other.

5. Continuance.

In order to assess the motivational value of the methods examined, a file was kept of all students participating in the experiment, beginning with French 101 in Fall 1958. This file gave us a total sample of 258 students (96 experimental and 162 control) with the following information for each student: all courses taken in the Department of Romance Languages during the six academic terms following the student's enrollment in elementary French (students who started in Winter 1959 were followed only for five academic terms), and grades received in each course. This gave us for every student an individual record showing not only his attendance and accomplishment in elementary French, but also his continuance of the study of French into the second year.

In the tabulation of the data contained in the students' file, we employed a dual approach: on the one hand, we tabulated the proportion of experimental versus control students who went on to second-year French; and on the other hand, we established the number of credit hours of French the average experimental and control student took beyond the first-year level.

Underlying our consideration of these two points was our basic hypothesis: a student of the experimental method is more likely than a control student is to continue his studies of French.

(It may be mentioned at this point that, at the University of Washington, many divisions have an entrance requirement of foreign-language study in lieu of which the student may enroll in elementary foreign-language courses without, however, obtaining graduation credit in them. The fact that many a first-year student in elementary French is simply making up for such a deficiency explains the considerable loss of student population which occurs between the first- and second-year courses.)

5.1.1 The initial tabulation indicated that of all students involved in the experiment who took French 101 under the above-named conditions, 14.6 percent of the experimental sample went on to do second-year work in French, whereas only 9.3 percent of the control students did so.

5.1.2 Similarly, of the experimental students who completed an entire year of French, 31.0 percent went on to do second-year work in French, whereas only 21.0 percent of the control students did so. Impressive as these differences in percentages may appear, neither of them is significant.

5.1.3 A tabulation was also made showing the number of students of each group who went on to take one, two, three or more courses beyond French 103. Here again, no significant difference was detected.

5.2.1 The problem of students' continuance in second-year courses was also approached by computing the average total credit hours of second-year French taken by all students who had enrolled in French 101. It was found that the average experimental student takes 1.25 credit hours beyond French 103 while the control student takes 0.629. The difference is not statistically significant.

5.2.2 The average credit hours of French beyond French 103 were also computed for those who completed an entire year of French. The mean of the experimental group was found to be 2.67 credit hours, as against 1.40 for control. This difference is not significant.

5.2.3 To further examine continuance in terms of credit hours, a tabulation was also made showing the number of students in each group who went on to take one to three, four to eight, or nine or more credit hours of French beyond French 103. Between-group differences were not significant here either.

All the continuance tabulations show means and percentages favorable for experimental, yet none of them shows differences significant at the 5 percent level. However, the fact that the differences are consistently favorable to the experimental group and that they at times approach the 10 percent level of significance, is indicative of a possible trend which deserves further and more extensive study.

5.3 Finally, a check was made on the number of students in the experiment who elected French as their major field of study in college. We found that by the conclusion of the experiment, out of 152 experimental students seven had elected French as their major, whereas out of 202 control students only two had made the same decision. If the statistical technique we used here is valid for the small proportions involved, this difference is significant.

6. Student and Faculty Opinion Surveys.

6.1 A preliminary student questionnaire was administered during the First and Second Runs to 89 experimental students and 143 control students at the end of their first quarter of study of French. It represented our first attempt to obtain quantitative information on various aspects of the students' attitudes toward language teaching and language learning. After examining the results obtained, we administered a slightly reduced version of the questionnaire at the Third Run to reexamine areas in which we felt gathering of further data was justified. All responses to questions included in the Third Run questionnaire were automatically entered among the co-variates of the final statistical analysis. [Blank spaces in the tabulation (C.5.1) indicate omission of the corresponding questions in the questionnaire used for the Run involved.]

On the responses to the individual questions, the following comments are in order.

6.1.0 Answers to question A indicate that the students enrolled in each of the two groups essentially at random, the great majority having entered a section without previous knowledge of which method was to be used in it.

6.1.1 Answers to question 1 failed to indicate any significant difference in the two groups' responses as to their motivation toward the acquisition of individual language skills. Since there was doubt as to the students' interpretation of the choices offered (particularly d), and since essentially the same attitude was covered in question 10, it was decided that the question would not enter into the Third Run questionnaire.

6.1.2 The data obtained from the answers to question 2 indicate a difference between the attitudes of the two groups toward language learning. In particular, the control student seems to think it more important "to have a precise knowledge of how words are put together to form a sentence," whereas the experimental student considers the ability "to put words together without hesitation" a more important factor. The distribution of responses to this particular question is significantly different between the two groups. If the choices offered in this question do reflect accurately the students' attitude toward language learning, it is interesting to note that the experimental students' responses are more consonant with foreign language teaching in a "new key."

Nevertheless, one should also be aware of the fact that a small number of experimental students consider the accumulation of vocabulary items as the most important aspect of foreign language learning, an attitude which is traditional in the extreme. This phenomenon did not occur in the control group. One might conjecture that experimental students who failed to achieve an understanding of the workings of the direct method tended to fall back upon the accumulation of vocabulary items as an apparently tangible substitute for the command of the living utterance.

6.1.3 The traditional idea that foreign language study contributes to the deeper understanding of one's own language was examined in question 3. The responses suggested that the control students tended to rate this contribution higher than did the experimental students. This could be ascribed to the fact that more formal grammar is included in the text of Harris and Lévêque, and that no attempt was made in Images de France to compare systematically the structure of French with that of spoken American English. (Cf. 4.2.)

6.1.4 Answers to question 4 indicate that there is an approximately equal appreciation of French contributions to American civilization among experimental and control students.

6.1.5 Question 5 attempted to test the student's sense of achievement in the individual language skills. On the first two Runs, it was interesting that the control student rated his achievement in the skills of reading and writing higher than did the experimental student; on the other hand, the experimental student rated his achievement in speaking ability and oral comprehension of French higher than did the control student. Though the four choices of response placed the language skills in a more or less life-like situation, the question did not give the student any opportunity to evaluate his achievement in each of the four skills. His response could only indicate in which skill he felt himself most proficient. It was therefore decided that this aspect would be reexamined and that the same question would be included in the final questionnaire, though reworded so that responses to it would be more revealing and would lend themselves more readily to statistical analysis. (See Third Run Questionnaire, questions 1 through 4.) Third Run data, however, failed to confirm the trend that had seemed to appear in the First and Second Runs. The statistical analysis of Third Run responses indicated that the average experimental student ranks his ability in each of the language skills the same as does the average control student.

6.1.6 Responses to question 6 indicate that essentially the same amount of work had been done outside class by both groups.

6.1.7 The figures obtained on question 7 fail to indicate any significant difference between the two groups with respect to conscious motivation for continuing the study of French beyond the point of testing. (This area is otherwise covered in our continuance analysis.)

6.1.8 Responses to question 8 fail to indicate any significant difference in the students' appreciation of their language course as compared with their other college courses. Since this was, however, an area in which we felt that we should pursue study, we repeated this question in exactly the same form in the Third Run questionnaire.

Numbered question 5 in the Third Run questionnaire, this question elicited responses indicating that the experimental students consider their overall achievement in the French course with essentially the same appreciation as do their control counterparts.

6.1.9 Responses to question 9 indicate that, without doubt, experimental students place more value on their work in the language laboratory than control students do. Since this information was felt to be relevant as a co-variate, the question was included in the final questionnaire of the Third Run and the number of choices was expanded from 3 to 4.

The Third Run questionnaire, in which the language laboratory was covered in question 6, substantiated the preliminary results. The experimental student believes in the effectiveness of the language laboratory more strongly than his control counterpart does. Our data do not provide us, however, with an answer to the inquiry as to whether the experimental student did in fact spend more time in the language laboratory than did the control student.

6.1.10 Question 10 pertained to the same kind of information as question 1. This time, however, the four language skills were named as such; and instead of choosing one, the students were requested to rank-order the four skills. The resluts show that both groups on the average ranked the four skills in the following order of importance: understanding, speaking, reading and writing. Thus the students themselves consistently rank the skills in the same order as would most forward-looking language teachers.

This question was also included on the questionnaire of the Third Run where it was given the number 7. Third Run data confirmed the results obtained during the first two Runs.

6.1.11 For question 11, where the student was asked to compare the method he used in his French course with that used in other language courses he may have taken, the results were similar in both groups. All students felt that, compared to other methods, the method they were presently studying under was superior.

Correlation between students' responses to the questionnaire (Third Run) and other variables is discussed in our co-variate analysis.

6.2.1 The faculty opinion poll indicated a high degree of favorable acceptance of *Images de France* and its method on the part of the high school and college teachers familiar with it.

In the following summary a number of extremely vague responses have been discarded. These range from a positive "excellent potential" to a negative "rewrite entire text." Some remarks have been judged irrelevant and discarded because they pertained not to the methods and materials themselves but to their observed use by some demonstration teacher. Such comment was, for example, "use blackboard more frequently for explanation." We also desregard here responses of those who have observed *Images de France* but once.

The subjects polled were asked to point out the most valuable feature of *Images de France* and its greatest shortcoming. As could be expected, the most obvious feature of *Images de France*, its visual apparatus, was judged to be its biggest asset. More than half of the subjects, 41 of them, responded in this manner. From among them, 13 emphasized the importance of the use of visual materials as the best vehicle with which to bring a foreign culture into focus for the student, nine stressed the motivational value of the visual, eight found that the correlation of visual and oral stimuli provided by the slides is of paramount importance, and finally, three specifically commended the method for correlating the pictorial material with the drill exercises.

Eight subjects felt that the most valuable feature of the course was its reliance on the "direct method." They believed that this aspect of *Images de France* guaranteed good pronunciation. From among them 3 pointed out specifically that the use of visual aids is the best way of eliminating the use of the students' native language in the classroom.

The grammatical presentation and the drill exercises were found to be important assets in 9 responses: in this category 3 subjects commended the clarity of the structural presentation and 4 subjects praised the drill exercises. Two additional subjects felt that the text itself and the drill exercises were correlated in a very commendable fashion.

Two subjects praised the audio materials contained in the package of the course and felt that their use helped the students a great deal to improve their pronunciation.

6.2.2 The subjects' criticisms, their suggestions for improvement and their general comments indicate the points of weakness in Images de France.

The basic assumption of the method, that is, the combination of the direct method with integrated audio-visual materials, has been questioned in only a very few instances. Two responses condemned "too much passive listening, mechanical repetition" and "repetition without meaning." One read: "Pictures do not enforce audio but rather detract from one another." Two subjects thought that this method was "unsound for young adults" and that "eighteen and twenty year olds do not learn language like small children." An eclectic opinion was found in 2 responses which claimed that "the method was effective for use only once a week" and that it should be used in conjunction with other methods.

The largest number, more than 30, of adverse critical reactions pertained to the content, style and vocabulary of Images de France. Both college and high school teachers felt that the text contained "too many abstractions," that its vocabulary was too difficult, and that its style was too literary for the level aimed at. Five responses specifically objected to the emphasis on geography and history and there were calls for "vocabulary of common everyday situations in life." Seven responses objected to the vocabulary on account of its not being "adaptable to everyday conversation." Seven responses emphasized the need for the inclusion of more properly conversational material into the revised edition, with one response specifically requesting "questions with vous and je." Two responses objected to the use of English cognates, with one of them pointing out that "more pronunciation errors are made in oral cognate vocabulary." Five responses either called for a shorter text or objected to the long sentences "unwieldy in oral work."

Criticisms pertaining to the overall design of the material called for more variety (2 responses), deplored the lack of proper grading in grammatical and vocabulary presentation (1), and noted the absence of spaced reviews (1).

A relatively large number of responses criticized the visual material included in the course. Two of them objected to the excessive number of slides per lesson, expressing the opinion that "after the first few lessons 8-10 slides suffice per lesson." Four responses criticized the choice of pictures, asking for "more action" in them. One response specifically suggested slides of French school life. Four responses objected to the presence of "unsynchronized" or "uncorrelated" slides in the course. One response called specifically for a better correlation between pictures and pattern drills, and one recommended the use of slides as stimuli for oral composition.

Thirteen criticisms and comments were reserved to the grammatical presentation and the pattern exercises of Images de France. One subject felt that, in this particular area, the findings of structural linguists should have been relied upon more widely. Another objected to the "haphazard exercises and structural presentation." The overall grammatical progress was judged too slow by one subject, and another claimed that the grammatical material was oversimplified. Two responses objected to the "inductive" approach used in the grammar coverage of Images de France; they claimed that the students were "left to figure out grammatical patterns," and that "more explanation of structural exercises" was needed. Three subjects felt that the exercises were poorly designed and one of them went as far as to say that they were ineffective.

A very small number of subjects (4) deplored the method's lack of emphasis on the reading and writing skills. Two of them specifically requested more material for written homework.

Five responses indicated the opinion that this audio-visual course should be available in two versions, one specifically designed for high school use, the other for college.

The method's special demand on staff time, as well as the administrative difficulties it might cause, received occasional criticism. Two subjects felt that the setup, operation, and storage of equipment involved in teaching with Images de France was too time-consuming. Two expressed the opinion that the method was too exhausting for the teacher if done in several classes daily. One respondent suggested in this connection that "oral class presentation should be taped." One claimed that to use the method effectively small classes are needed, and another felt that the method risks becoming boring to the teacher and later to the pupil.

6.2.3 The following new features were suggested. Two subjects felt that the slides should be changed to film strips. One suggested that tapes be put in cartridges and another that two tapes be provided, "one for use in the classroom and the other for use in the laboratory."

Three subjects requested prerecorded test materials mainly for the purpose of testing oral production and aural comprehension.

For the textbook itself hard covers were suggested, and so was the use of stick figures for simpler illustration. Finally, the inclusion of a French-English and an English-French vocabulary was recommended. Two subjects felt that the package including the audio-visual materials is too expensive.

The uncontrolled verbalized responses summarized above could not of course be evaluated with any statistical accuracy. Nevertheless, they bear witness to a "positive" response to the audio-visual method on the part of the teachers familiar with it while pointing out a number of weak spots and offering constructive criticism. The latter has been included here in some detail with the aim of offering an outline of the possible categories of appreciation to which teachers refer when judging an audio-visual teaching method and its materials. It is hoped that in their summary form as presented here, these responses may serve as a guide for specialists designing such materials and for those who in the future wish to test faculty acceptance of them with statistically controllable responses.

7 Conclusions. The most outstanding positive characteristic of the experimental method seems to be its efficiency in the teaching of the speaking skill. In particular, the experimental students' pronunciation was far superior to that of the control students. The aural comprehension of the experimental students was on a par with that of the control students. On the negative side, on both the reading and writing tests, the experimental group scored conspicuously lower than the control group. Their inferiority appeared not only in the comparison of the achievements of the two groups, but also, and even more strikingly, in the comparison of their scores with national standards.

The audio-visual approach has a motivational value which appears to be superior to the motivation generated by the control method. This tendency is discernable in the continuance figures and in the electing of French as a major.

A further point worthy of mention with respect to the experimental method is the fact that the experimental students' knowledge of English played a slighter role in their acquisition of French than was the case with the control students. This trend appeared both in the responses to our student questionnaire and in the correlations between English usage and spelling test scores on the one hand and skill scores on the other. Thus less "transfer" from English to the foreign language seems to have taken place in the experimental group than in the control group.

The college teacher who tries to achieve a balanced progress in all four language skills during the first year of study, would find the experimental method inferior to the control method. Whether or not it is really inferior cannot be answered until more research is completed in the "ideal" design of a language course. There is a somewhat vague consensus among the specialists that it is easier to translate audio-lingual skills into the skills of reading and writing, than proceeding the other way around. This consensus must, however, be documented first. Only after having proven that developing the audio-lingual skills on the basis of reading and writing is significantly more difficult, or significantly less efficient, than proceeding in the opposite direction, only then can we pass comparative value judgments upon two teaching methods each of which favors the development of a different set of skills.

Assuming, for the present time, that the ideal elementary language course should place equal emphasis on the four language skills, and taking cognizance of the apparent motivational value of the audio-visual method, we strongly suggest that the audio-visual course Images de France be revised and that one of the revision's chief concerns be the adaptation of audio-visual materials and techniques to the purpose of teaching the reading and writing of the foreign language. We believe that this could be done without discarding those features of the course which accounted for superior results in speaking. Our faculty opinion survey, incidentally, suggests a number of ways in which Images de France could be improved.

Until such improvements are made, the control method seems to be better balanced with respect to all four language skills. Students working with it acquire a command of the reading and writing of the foreign language which compares favorably with national averages in these skills. Although we have made no comparisons between the relative achievements of our control students and those of students taught by means of "traditional" methods (with emphasis on translation and formal grammar), all instructors involved believe that the control method is more successful in teaching the audio-lingual skills of French than were the "traditional" methods they had used previously.

Our test battery was far from being completely satisfactory. Our minimal-pairs test could have been based on more complex and complete patterns (such as the ones proposed by Pierre Delattre in the May 1960 issue of The French Review, pp. 596-597). Scoring was a major problem for oral composition, since we found no way in which to test this skill objectively. (While recent attempts at elaborating oral tests by the use of pictures do represent improvement, the inclusion of pictures might have been questionable for a project such as ours, where an experimental sample familiar with the handling of visual materials is pitted against a control sample not used to working with visual materials.) It was of some comfort, however, that our oral test scores did show high concordance in the ranking of the subjects. In future research, tests now in the process of preparation will certainly sharpen the investigator's tools.

Because of administrative difficulties, it was impossible to assure a rotating of the teaching faculty between the experimental and control groups. We thought we had the variable of the teacher's ability and effectiveness under control by using the University's instructor rating system and staffing the experimental and control groups with instructors of comparable rating. However, upon examining our correlations, we found that this rating was irrelevant as far as the students' achievements were concerned, which leaves us with serious doubt as to the homogeneity of the instructors involved in the experiment. We suggest to future experimenters that, unless they find a better way of controlling this variable, they attempt rotating the teaching faculty between the experimental and control groups.

Our research has also demonstrated a point which is a truism for the statistician or for the quantitative analyst in the exact sciences, but which is all too often ignored by the average language teacher who publishes "experimental" findings in the journals of his field. This point is that, no matter how appealing the differences may be which they seem originally to present to the naked eye, means and medians "deflate" very easily when subjected to genuine statistical tests of even a modest sophistication. The experimentation which is now being conducted on a nation-wide scale will, we all hope, soon spread from the laboratories of the major universities down to the high scool classroom itself. As more and more experiments come to be conducted in the field, the experimenters will have to make sure, by means of consultation or otherwise, that their findings are not diluted by lack of precise statistical analysis. Our progress depends largely on the reliability of our quantitative judgments.

5.0 Introduction.

A. General Notes

1. Except where specifically stated otherwise, all statistics here presented were obtained from Third Day data, representing a sample of [illegible] Control students and [illegible] Experimental students.

2. The Standard Deviations given here were derived from the formula which uses the number of observations in the denominator.

3. The t-values shown in the comparison of Final Composition means were obtained from logarithmically transformed raw scores (viz., X into log X), and the sample size in this instance was [illegible] Control and [illegible] Experimental.

4. The t-values shown in the comparison of mean credit hours were obtained from logarithmically transformed data (viz., X into log (X+1)).

STATISTICAL TABLES

5. Statistical data pertaining to the Third Day Student Questionnaire were obtained by giving the student a score 1 where he selected the weakest response, "With what I know now, I wouldn't attempt it at all.", through a score [illegible] where the strongest or most positive reply was selected.

6. When statistics of known distributions under given hypotheses are presented, the common notational procedure of using the asterisk (*) and double asterisk (**) to denote significance at 5 and 1 percent levels is employed.

B. Acknowledgements

7. We are indeed grateful for the assistance afforded us at the University of Washington's Research Computer Laboratory, without which it would have been virtually impossible for us to process the data to the extent here manifested.

8. We are indebted to the University of Washington's Division of Counseling and Testing Services for its assistance in collecting data on the students who participated in the experiment.

8.0 Introduction.

A. General Notes

1. Except where specifically stated otherwise, all statistics here presented were obtained from Third Run data, representing a sample of 40 Control students and 55 Experimental students.

2. The Standard Deviations given here were derived from the formula which uses the number of observations in the denominator.

3. The t-values shown in the comparison of Oral Composition means were obtained from logarithmically transformed raw scores (viz, X into log X), and the sample size in this instance was 44 Control and 57 Experimental.

4. The F-values shown in the comparison of mean credit hour were obtained from logarithmically transformed data (viz, X into log (X+1)).

5. Statistical data pertaining to the Third Run Student Questionnaire were obtained by giving the student a score 1 where he selected the weakest response. "With what I know now, I wouldn't attempt it at all.", through a score 4 or 5 where the strongest or most positive reply was selected.

6. When statistics of known distributions under given hypotheses are presented, the common notational procedure of using the asterisk (*) and double asterisk (**) to denote significance at 5 and 1 percent levels is employed.

B. Acknowledgements

7. We are indeed grateful for the assistance afforded us at the University of Washington's Research Computer Laboratory, without which it would have been virtually impossible for us to process our data to the extent here manifested.

8. We are indebted to the University of Washington's Division of Counseling and Testing Services for its assistance in collecting data on the students who participated in the experiment.

Introduction to Statistical Tables (Cont'd.)

9. Nearly all statistics here presented were obtained directly or indirectly from the use of A. Dvorak's and C. E. Wright's Symmetric Correlation Matrix Program for the IBM Type 650, Technical Report, Office of Naval Research Contract Nonr-447 (08), University of Washington Division of Counseling and Testing Services, December, 1956 (a).

10. A particularly valuable reference was R. F. Tate's "Applications of Correlation Models for Biserial Data", Journal of American Statistical Association, L (December 1955), 1078-1095.

8.14 OUTSIDE VARIABLES

Group Means and Standard Deviations

	Experimental		Control		
	Mean	S.D.	Mean	S.D.	|t|
Instructor's Rating	3.92	.3274	3.95	.2231	.512
English Usage T.S.	105.51	25.45	106.48	24.44	.183
Spelling T.S.	21.89	8.880	21.60	9.222	.153
ACE (Q) Score	46.67	8.849	46.95	7.423	.164
ACE (L) Score	75.91	13.39	74.65	13.045	.444
High School GPA	2.99	.5614	3.09	.6348	.745
High School Math. GPA	2.89	.6482	2.86	.7214	.212
All UNIV.Grade Pred.	2.49	.3895	2.55	.4658	.648
F.L. Grade Pred.	2.78	.5558	2.92	.6405	1.11

8.3.1 TEST BATTERY

Group Means

First and Second Runs Combined

PRETEST	EXPERIMENTAL	CONTROL
Minimal Pairs	24.60	20.03
Question-Answers	10.01	12.20
Cooperative Listening, Parts 1, 2, 3	12.30	13.10
Grammar Comprehension	13.89	13.50
Coop. French Test, Part 1 (Scaled Score)	27.40	31.25
POSTTEST	**EXPERIMENTAL**	**CONTROL**
Minimal Pairs	25.62	22.49
Question-Answers	14.06	13.13
Cooperative Listening, Parts 1, 2, 3	14.36	14.05
Grammar Comprehension	14.33	13.79
Coop. French Test, Part 1 (Scaled Score)	38.58	39.07
Coop. French Test, (Total Scaled Score)	41.23	43.27

8.3.1 (Cont'd) **TEST BATTERY**

Group Means and Standard Deviations

Third Run

PRETEST	EXPERIMENTAL Mean	 S.D.	CONTROL Mean	 S.D.	|t|
Minimal Pairs	20.57	3.440	17.65	4.499	3.54**
Oral Compositions	19.57	7.201	17.69	7.306	1.51
Coop. Listening, Pt. 1	6.618	1.579	6.475	1.084	.395
" " , Pt. 2	4.80	2.135	5.925	2.207	2.40*
" " , Pt. 3	6.47	1.990	5.725	2.775	1.50
Grammar Comprehension,					
Pt. 1	11.89	3.061	12.48	2.924	.929
" " Pt. 2	12.76	2.254	12.18	2.096	1.27
Coop. French Test, Pt. 1	13.36	9.086	15.95	6.626	1.51
Coop. French Test, Pt. 2	21.60	9.131	24.12	7.454	1.42
" " " Pt. 3	11.14	6.443	16.10	6.062	3.57**

POSTTEST	EXPERIMENTAL Mean	 S.D.	CONTROL Mean	 S.D.	|t|
Minimal Pairs	*23.90*	*2.557*	*20.69*	*3.608*	*4.99***
Oral Compositions	16.89	8.205	13.99	6.825	2.41*
Coop. Listening, Pt.1	6.636	1.520	6.075	1.418	.774
" " , Pt.2	7.855	3.639	6.900	2.746	1.37
" " , Pt.3	7.091	1.821	6.300	2.502	1.754
Grammar Comprehension,					
Pt.1	13.50	2.774	14.05	3.114	.764
" " Pt.2	13.29	2.927	12.90	2.728	.647
Coop. French Test, Pt.1	19.33	9.078	23.35	7.463	2.24*
Coop. French Test, Pt.2	30.02	8.248	33.98	5.655	2.59*
" " Pt.3	15.46	6.749	21.62	7.213	4.23**

8.2.3 RAW TABULATION OF FACULTY SURVEY OPINION DATA

ACADEMIC RANK

	Number of Persons
Elementary School	
Teacher	2
Junior High School	
Teacher	1
Senior High School	
Department Head	4
Teacher	33
University	
Professor	2
Associate Professor	8
Assistant Professor	6
Instructor	2
Teaching Associate	1
Teaching Assistant	1
Teaching Fellow	1
Graduate Student	1
Miscellaneous	
Supervisor	1
Auditor	1
Not indicated	4
Total	68

FAMILIARITY WITH IMAGES

	University	High School	Jr. High	Elem. School
Taught it several semesters	19	5	0	0
Taught it one semester	1	0	0	0
Observed it several semesters	13	21	1	2
Observed it once	1	5	0	0
Total	34	31	1	2
Grand Total	68			

8.2.3 (Cont'd)

TEACHING LEVEL BEST SUITED FOR IMAGES

	Number of Persons
College	23
College and Senior High School	17
Senior High School	14
Senior and Junior High School	3
Junior High School	3
Elementary School	2
Total	62↓

* Not all persons responded to that question.

OPINION OF TEACHING METHOD

	Number of Responses
Superior to any other	0
Superior to most	24
As effective as any other	19
Less effective than most	10
Less effective than any other	0
Total	51↓

↓ Not all persons responded to that question.

8.3.1 (Cont'd)

SKILL SCORE MEANS[1]

Third Run

PRETEST	EXPERIMENTAL	CONTROL
Speaking	54.010	44.470
Comprehension	49.835	50.223
Reading	48.677	51.820
Writing	45.800	55.766
POSTTEST	**EXPERIMENTAL**	**CONTROL**
Speaking	55.48	42.41
Comprehension	51.95	47.29
Reading	48.07	52.67
Writing	44.39	57.77

---

[1] These "skill scores" are completely artificial and are not valid for any comparative judgments, the reason being that in their fabrication the significant correlations between elements of the test battery which compose each skill score are not taken into account. In order to evaluate any quantitative differences between skills, the reader should refer to the appropriate t - values of test battery means (8.3.1).

The skill scores given above were conventionally obtained by first transforming the test battery scores to standard scores and then adding them together. The resulting skill score would have a mean 50 and Standard Deviation 10.

C.3.2 COMPARISON OF PRETEST-POSTTEST CORRELATION COEFFICIENTS

Third Run

	CORRELATION COEFFICIENT		|t| (∞ d.f.)
	Experimental	Control	
Minimal Pairs	.501	.409	.600
Oral Compositions	.652	.602	.306
Coop. Listening, Pt. 1	.360	.546	1.004
" " , Pt. 2	.560	.504	.160
" " , Pt. 3	.322	.311	.005
Grammar Comp., Pt. 1	.553	.393	.977
" " , Pt. 2	.076	.405	1.652
Coop. French Test, Pt. 1	.060	.710	1.970*
Coop. French Test, Pt. 2	.073	.705	2.107*
" " " , Pt. 3	.030	.065	.079

8.3.3 COOPERATIVE FRENCH TEST SCORES

Fourth Run[1]

	EXPERIMENTAL	CONTROL
Part 1 (Reading)		
Mean Raw Score	25.0	28.7
Mean Scaled Score	49	58
National Percentile	29	62
Part 2 (Vocabulary)		
Mean Raw Score	34.2	37.4
Mean Scaled Score	58	61
National Percentile	43	56
Part 3 (Grammar)		
Mean Raw Score	18.35	24.7
Mean Scaled Score	47	58
National Percentile	22	65
Total		
Scaled Score	51	60
National Percentile	29	63

---

[1] Sample consisted of 40 Experimental and 46 Control students who had completed one year of college French.

8.3.4 SCORERS' RELIABILITY

ANALYSIS OF VARIANCE TABLE FOR COMPARING MEAN SCORES GIVEN BY EACH SCORER FOR THE ORAL COMPOSITION TEST

SOURCE	S.S.	d.f.	M.S.
Between Scorers	1052.46	2	526.23**
Within Scorers (Error)	21310.66	312	68.30

F = 7.70 with (2,312) d.f.

ANALYSIS OF VARIANCE TABLE FOR COMPARING MEAN SCORES GIVEN BY EACH SCORER FOR THE MINIMAL PAIRS TEST

SOURCE	S.S.	d.f.	M.S.
Between Scorers	247.39	2	123.695**
Within Scorers (Error)	5602.6	312	17.957

F = 6.89 with (2,312) d.f.

As a measure of the scorers' agreement with respect to their ranking the students scored, the statistic

$$W = \frac{S}{\frac{1}{12}m^2\,(n^3-n) - m\Sigma T'}$$

was used, called the "Coefficient of Concordance", (see Kendall, M. G., Rank Correlation Methods, 1955.) The results were:

for Oral Composition, W = .919**
for Minimal Pairs, W = .855**

where, of course, W = 1.000 would indicate that all three scorers' rankings were in perfect agreement.

C.4

CORRELATION COEFFICIENTS BETWEEN ELEMENTS OF THE TEST BATTERY (Pretest Scores with Pretest Scores)

EXPERIMENTAL		PRETEST								
		Min.Pairs Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
			Pt.1	Pt.2	Pt.3	Pt.1	Pt.2	Pt.1	Pt.2	Pt.3
Minimal Pairs		.353	.351	.207	.233	.317	.223	.160	.154	.120
Oral Compositions			.433	.455	.344	.439	.149	.532	.572	.466
PRETEST Coop. List. Test	Part 1			.463	.409	.477	.312	.477	.574	.526
	Part 2				.290	.467	.167	.403	.539	.510
	Part 3					.252	.134	.194	.222	.304
Gram. Compreh'n	Part 1						.127	.300	.301	.440
	Part 2							.273	.145	.065
Coop. French Test	Part 1								.822	.704
	Part 2									.714
	Part 3									

CONTROL		PRETEST								
		Min.Pairs Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
			Pt.1	Pt.2	Pt.3	Pt.1	Pt.2	Pt.1	Pt.2	Pt.3
Minimal Pairs		.409	.180	.230	.205	.194	.191	.109	.016	.290
Oral Compositions			.349	.306	.372	.354	.436	.607	.553	.677
PRETEST Coop. List. Test	Part 1			.165	.290	.109	.327	.200	.206	.240
	Part 2				.254	.412	.270	.220	.397	.311
	Part 3					.118	.129	.316	.249	.179
Gram. Compreh'n	Part 1						.254	.292	.351	.419
	Part 2							.369	.120	.436
Coop. French Test	Part 1								.730	.680
	Part 2									.711
	Part 3									

8.4 (Cont'd) CORRELATION COEFFICIENTS
BETWEEN ELEMENTS OF THE TEST BATTERY
(Posttest Scores with Posttest Scores)

EXPERIMENTAL			POSTTEST								
			Min.Pairs Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
				Pt.1	Pt.2	Pt.3	Pt.1	Pt.2	Pt.1	Pt.2	Pt.3
POSTTEST	Minimal Pairs		.068	.093	.009	-.072	.064	.089	-.079	-.090	-.026
	Oral Compositions			.338	.521	.532	.471	.498	.593	.588	.615
	Coop. List. Test	Part 1			.211	.307	.327	.159	.396	.425	.438
		Part 2				.347	.465	.364	.649	.653	.604
		Part 3					.370	.394	.452	.497	.489
	Gram. Comp-reh'n	Part 1						.402	.560	.465	.530
		Part 2							.441	.442	.489
	Coop. French Test	Part 1								.859	.821
		Part 2									.806
		Part 3									

CONTROL			POSTTEST								
			Min.Pairs Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
				Pt.1	Pt.2	Pt.3	Pt.1	Pt.2	Pt.1	Pt.2	Pt.3
POSTTEST	Minimal Pairs		.172	.107	.304	.117	.316	.290	.139	.198	.161
	Oral Compositions			.296	.484	.120	.513	.462	.477	.468	.683
	Coop. List. Test	Part 1			.344	.349	.199	.281	.306	.411	.306
		Part 2				.434	.492	.476	.597	.447	.601
		Part 3					.402	.246	.426	.350	.275
	Gram. Comp-reh'n	Part 1						.454	.401	.361	.526
		Part 2							.268	.274	.476
	Coop. French Test	Part 1								.775	.709
		Part 2									.584
		Part 3									

8.4 (Cont'd) CORRELATION COEFFICIENTS BETWEEN ELEMENTS OF THE TEST BATTERY (Pretest Scores with Posttest Scores)

EXPERIMENTAL			POSTTEST									
			Min.Pairs	Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
					Pt.1	Pt.2	Pt.3	Pt.1	Pt.2	Pt.1	Pt.2	Pt.3
PRETEST	Minimal Prs.		.581	.244	.138	.203	.082	.231	.301	.096	.159	.172
	Oral Comp.		.045	.652	.329	.409	.369	.449	.316	.579	.599	.529
	Coop. List. Test	Pt. 1	.073	.404	.360	.306	.461	.379	.355	.485	.492	.557
		Pt. 2	.133	.394	.230	.560	.210	.420	.361	.414	.431	.412
		Pt. 3	.049	.295	.135	.264	.322	.274	.147	.210	.284	.294
	Gram. Comp-reh'n	Pt. 1	.179	.402	.307	.494	.432	.553	.624	.400	.511	.519
		Pt. 2	.068	.254	.114	.068	.168	.137	.076	.185	.117	.123
	Coop. French Test	Pt. 1	.014	.537	.331	.626	.496	.604	.443	.068	.828	.722
		Pt. 2	.065	.531	.407	.620	.473	.519	.479	.060	.673	.777
		Pt. 3	.013	.454	.454	.579	.371	.458	.377	.696	.634	.830

CONTROL			POSTTEST									
			Min.Pairs	Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
					Pt.1	Pt.2	Pt.3	Pt.1	Pt.2	Pt.1	Pt.2	Pt.3
PRETEST	Minimal Prs.		.409	.413	.233	.358	-.019	.174	.372	.021	-.022	.280
	Oral Comp.		.100	.602	.375	.520	.392	.552	.333	.524	.494	.696
	Coop. List. Test	Pt. 1	.304	.227	.546	.275	.431	.443	.233	.329	.163	.317
		Pt. 2	.210	.160	.221	.584	.244	.372	.360	.305	.244	.303
		Pt. 3	.172	.182	.322	.249	.311	.146	.254	.179	.251	.217
	Gram. Comp-reh'n	Pt. 1	.106	.385	.207	.389	.285	.393	.263	.208	.261	.439
		Pt. 2	.253	.329	.361	.446	.276	.377	.405	.373	.237	.373
	Coop. French Test	Pt. 1	.133	.396	.377	.426	.407	.407	.204	.718	.644	.632
		Pt. 2	.033	.410	.221	.485	.241	.402	.221	.677	.703	.718
		Pt. 3	.225	.710	.256	.556	.139	.538	.401	.633	.499	.843

8.4 (Cont'd) CORRELATION COEFFICIENTS BETWEEN ELEMENTS OF TEST BATTERY (PRETEST) AND OUTSIDE VARIABLES

EXPERIMENTAL			OUTSIDE VARIABLES								
			Instructor's Rating	English Usage T.S.	Spelling T.S.	ACE (Q) Score	ACE (L) Score	High School GPA	High School Math. GPA	All Univ.Grade Prediction	F.L. Grade Prediction
PRETEST	Minimal Pairs		.002	.230	.000	.303	.100	.153	.009	.003	.013
	Oral Composition		.054	.353	.210	.344	.336	.324	.254	.379	.301
	Coop. List. Test	Part 1	.155	.369	.132	.273	.414	.466	.300	.529	.559
		Part 2	.315	.102	-.010	.160	.164	.054	.096	.140	.209
		Part 3	.055	.100	.220	.102	.231	.274	.140	.207	.266
	Gram. Comp-reh'n	Part 1	.063	.059	-.109	.241	.070	.154	.127	.118	.129
		Part 2	-.009	.110	-.036	.056	.259	.127	.125	.142	.044
	Coop. French Test	Part 1	.213	.218	.130	.236	.279	.250	.233	.359	.285
		Part 2	.137	.131	.108	.212	.205	.263	.175	.309	.347
		Part 3	.135	.154	.214	.316	.292	.374	.279	.444	.426

CONTROL			OUTSIDE VARIABLES								
			Instructor's Rating	English Usage T.S.	Spelling T.S.	ACE (Q) Score	ACE (L) Score	High School GPA	High School Math. GPA	All Univ.Grade Prediction	F.L. Grade Prediction
PRETEST	Minimal Pairs		-.024	.240	.124	-.093	-.096	.103	.094	.037	.017
	Oral Composition		.116	.599	.449	.301	.418	.592	.403	.646	.660
	Coop. List. Test	Part 1	.079	.574	.395	.143	.358	.251	.143	.326	.309
		Part 2	-.076	.113	-.047	-.113	.090	.198	.139	.164	.220
		Part 3	-.009	.208	.114	.015	.141	.159	-.060	.080	.143
	Gram. Comp-reh'n	Part 1	.074	.104	.102	.181	.159	.265	.182	.247	.286
		Part 2	.413	.372	-.052	.463	.337	.497	.441	.408	.454
	Coop. French Test	Part 1	.246	.443	.324	.237	.471	.351	.174	.519	.474
		Part 2	.046	.353	.376	-.036	.211	.266	.136	.436	.309
		Part 3	.134	.397	.308	.096	.160	.449	.390	.490	.533

8.4 (Cont'd) CORRELATION COEFFICIENTS BETWEEN ELEMENTS OF TEST BATTERY (POSTTEST) AND OUTSIDE VARIABLES

EXPERIMENTAL			OUTSIDE VARIABLES								
			Instructor's Rating	English Usage T.S.	Spelling T.S.	ACE (Q) Score	ACE (L) Score	High School GPA	High School Math. GPA	All Univ Grade Prediction	F.L. Grade Prediction
POSTTEST	Minimal Pairs		-.300	.136	-.006	.070	-.019	.005	-.169	-.102	-.050
	Oral Compositions		-.064	.134	-.047	.396	.246	.379	.324	.378	.302
	Coop. List. Test	Part 1	-.097	.330	.283	.314	.284	.329	.404	.519	.525
		Part 2	.140	.033	-.028	.182	.048	.158	.148	.150	.128
		Part 3	.090	.118	.162	.298	.251	.262	.168	.247	.233
	Gram. Comp-reh'n	Part 1	.102	.193	.006	.235	.242	.219	.139	.256	.225
		Part 2	.012	.031	-.008	.180	.052	.152	.074	.107	.066
	Coop. French Test	Part 1	.149	.266	.199	.358	.319	.364	.371	.506	.411
		Part 2	.122	.203	.196	.273	.279	.356	.352	.462	.388
		Part 3	.009	.173	.136	.304	.267	.412	.378	.471	.414

CONTROL			OUTSIDE VARIABLES								
			Instructor's Rating	English Usage T.S.	Spelling T.S.	ACE (Q) Score	ACE (L) Score	High School GPA	High School Math. GPA	All Univ Grade Prediction	F.L. Grade Prediction
POSTTEST	Minimal Pairs		.142	.156	.007	-.029	-.087	.048	-.073	-.064	.036
	Oral Compositions		.133	.519	.438	.208	.333	.551	.378	.479	.472
	Coop. List. Test	Part 1	.381	.409	.264	.175	.298	.226	.213	.331	.349
		Part 2	.144	.464	.284	.202	.294	.481	.355	.487	.549
		Part 3	.230	.398	.324	.312	.538	.368	.202	.386	.415
	Gram. Comp-reh'n	Part 1	-.081	.533	.353	.369	.400	.632	.571	.672	.665
		Part 2	-.009	.271	.047	.154	.089	.382	.267	.268	.301
	Coop. French Test	Part 1	.419	.523	.349	.188	.444	.411	.259	.542	.512
		Part 2	.427	.472	.276	.164	.363	.298	.152	.444	.451
		Part 3	.194	.591	.448	.211	.332	.558	.431	.628	.581

8.4 (Cont'd) CORRELATION COEFFICIENTS BETWEEN ELEMENTS OF TEST BATTERY (PRETEST) AND RESPONSES TO STUDENT QUESTIONNAIRE

EXPERIMENTAL			STUDENT QUESTIONNAIRE									
			Question No.									
			1	2	3	4	5	6	7(a)	7(b)	7(c)	7(d)
PRETEST	Minimal Prs.		.106	.077	.009	-.001	.244	.151	.136	-.155	.085	-.067
	Oral Comp.		.364	.177	.138	.098	.170	.174	-.074	-.098	.213	-.029
	Coop. List. Test	Pt.1	.349	.162	.296	.054	.189	.299	.153	-.128	.049	-.104
		Pt.2	.192	.198	.100	.167	.126	.244	.169	-.285	.075	.089
		Pt.3	.159	.169	.108	-.026	.018	.183	-.009	-.035	.047	.084
	Gram. Comp-reh'n	Pt.1	.159	.343	.201	.177	.152	.284	-.007	-.068	.117	-.026
		Pt.2	-.127	.166	-.014	-.149	.004	.405	.204	-.189	.123	-.160
	Coop. French Test	Pt.1	.063	.145	.295	.095	.085	.252	.092	.017	.004	-.113
		Pt.2	.340	.206	.380	.234	.125	.216	.022	.134	-.109	-.072
		Pt.3	.259	.198	.427	.146	.202	.205	.131	-.115	.104	-.145

CONTROL			STUDENT QUESTIONNAIRE									
			Question No.									
			1	2	3	4	5	6	7(a)	7(b)	7(c)	7(d)
PRETEST	Minimal Prs.		.387	.211	.211	-.089	.034	.068	.051	-.170	.103	.037
	Oral Comp.		.349	.003	.209	-.019	.234	-.109	.158	-.058	.092	-.203
	Coo[illegible] Li[illegible] Test	Pt.1	-.078	-.072	.058	.082	-.054	.246	.055	-.009	.188	-.238
		Pt.2	.163	.284	.149	-.080	.278	-.173	.170	-.141	.085	-.114
		Pt.3	.190	.244	.157	.192	.081	.252	.135	-.104	.107	-.218
	Gram. Comp-reh'n	Pt.1	.094	.214	.119	-.102	.318	-.156	-.028	.101	-.126	.041
		Pt.2	-.070	.062	.086	.005	.028	.045	.246	.081	-.032	-.338
	Coop. French Test	Pt.1	.210	-.108	.024	.089	.073	.058	.184	-.068	.075	-.203
		Pt.2	.241	-.269	.029	-.271	.165	-.178	.065	-.048	-.019	-.002
		Pt.3	.209	-.112	.048	-.403	.349	-.136	.052	-.043	.013	.022

8.4 (Cont'd)

CORRELATION COEFFICIENTS BETWEEN ELEMENTS OF TEST BATTERY (POSTTEST) AND RESPONSES TO STUDENT QUESTIONNAIRE

EXPERIMENTAL			STUDENT QUESTIONNAIRE									
			Question No.									
			1	2	3	4	5	6	7(a)	7(b)	7(c)	7(d)
POSTTEST	Minimal Prs.		.044	-.109	.136	-.030	.229	-.012	.144	-.175	.136	-.135
	Oral Comp.		.390	.200	.120	.154	.403	.307	.013	-.121	.212	-.037
	Coop. List. Test	Pt.1	.221	.105	.209	.077	.117	.124	-.093	.119	.101	-.202
		Pt.2	.001	.116	.167	.031	.180	.275	.061	-.200	.090	.111
		Pt.3	.204	.214	.242	.122	.297	.474	.061	.018	.000	-.131
	Gram. Comp-reh'n	Pt.1	.213	.210	.067	.059	.322	.377	.060	-.109	.008	-.004
		Pt.2	.166	.164	.103	.202	.314	.329	-.026	.033	.070	-.037
	Coop. French Test	Pt.1	.250	.146	.246	.122	.202	.152	-.010	.177	-.024	-.177
		Pt.2	.216	.135	.301	.140	-.016	.136	-.069	.208	-.109	-.033
		Pt.3	.323	.173	.492	.243	.279	-.261	.019	.006	.017	-.040

CONTROL			STUDENT QUESTIONNAIRE									
			Question No.									
			1	2	3	4	5	6	7(a)	7(b)	7(c)	7(d)
POSTTEST	Minimal Prs.		-.216	.140	-.137	-.250	-.001	.026	.158	-.106	.061	-.116
	Oral Comp.		.332	-.010	.331	-.166	.352	-.134	.003	-.101	.173	-.056
	Coop. List. Test	Pt.1	.164	.011	.052	-.119	-.034	.024	.129	-.059	.016	-.092
		Pt.2	.369	.240	.030	-.077	.493	-.210	.177	-.209	.206	-.151
		Pt.3	.051	.113	-.099	.140	.196	-.029	.324	.000	-.040	-.326
	Gram. Comp-reh'n	Pt.1	.100	-.008	.101	.050	.290	-.221	-.066	-.006	.131	-.040
		Pt.2	.232	.110	.292	-.064	.250	-.032	.444	-.444	.376	-.361
	Coop. French Test	Pt.1	.232	-.114	-.109	-.204	.334	-.092	.199	-.131	.140	-.219
		Pt.2	.123	.000	-.117	-.299	.165	-.201	.157	-.039	-.001	-.050
		Pt.3	.313	-.169	.129	-.175	.261	-.127	.164	-.060	.097	-.212

8.4 (Cont'd) CORRELATION COEFFICIENTS
BETWEEN ELEMENTS OF THE TEST BATTERY
(PRETEST SCORES WITH PRETEST SCORES
AND POSTTEST SCORES WITH POSTTEST SCORES)

EXPERIMENTAL AND CONTROL			PRETEST								
			Minimal Prs. Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
				Pt.1	Pt.2	Pt.3	Pt.1	Pt.2	Pt.1	Pt.2	Pt.3
PRETEST	Minimal Pairs		.395	.250	.140	.255	.205	.236	.070	.034	.067
	Oral Compositions			.394	.344	.376	.387	.270	.521	.533	.476
	Coop. List. Test	Part 1			.300	.385	.302	.318	.381	.403	.352
		Part 2				.218	.451	.171	.406	.498	.473
		Part 3					.165	.140	.205	.230	.166
	Gram. Comp-reh'n	Part 1						.173	.486	.502	.439
		Part 2							.276	.114	.166
	Coop. French Test	Part 1								.083	.662
		Part 2									.706
		Part 3									

EXPERIMENTAL AND CONTROL			POSTTEST								
			Minimal Prs. Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
				Pt.1	Pt.2	Pt.3	Pt.1	Pt.2	Pt.1	Pt.2	Pt.3
POSTTEST	Minimal Pairs		.102	.048	.180	.116	.138	.197	.091	.096	.128
	Oral Compositions			.301	.521	.357	,459	.487	.491	.475	.499
	Coop. List. Test	Part 1			.239	.340	.275	.199	.371	.421	.380
		Part 2				.384	.449	.404	.579	.533	.482
		Part 3					.364	.323	.364	.346	.266
	Gram. Comp-reh'n	Part 1						.461	.494	.421	.514
		Part 2							.354	.353	.414
	Coop. French Tesc	Part 1								.045	.777
		Part 2									.734
		Part 3									

8.4 (Cont'd) CORRELATION COEFFICIENTS
BETWEEN ELEMENTS OF THE TEST BATTERY
(PRETEST SCORES WITH POSTTEST SCORES)

EXPERIMENTAL AND CONTROL			POSTTEST									
			Min.Pairs	Oral Comp.	Cooperative Listening Test			Grammar Compreh'n		Cooperative French Test		
					Part 1	Part 2	Part 3	Part 1	Part 2	Part 1	Part 2	Part 3
PRETEST	Minimal Prs.		.599	.350	.140	.209	.085	.161	.332	-.021	-.014	.056
	Oral Comp.		.125	.638	.333	.504	.309	.400	.320	.507	.486	.497
	Coop. List. Test	Pt.1	.195	.326	.435	.209	.443	.405	.299	.393	.333	.307
		Pt.2	.034	.245	.237	.504	.169	.407	.331	.405	.401	.422
		Pt.3	.170	.257	.205	.263	.335	.109	.203	.150	.203	.166
	Gram. Comp-reh'n	Pt.1	.079	.410	.321	.435	.329	.405	.473	.399	.434	.480
		Pt.2	.197	.290	.195	.209	.234	.235	.210	.209	.113	.229
	Coop. French Test	Pt.1	-.017	.450	.351	.534	.396	.523	.346	.029	.703	.715
		Pt.2	-.006	.451	.347	.527	.321	.672	.372	.007	.023	.736
		Pt.3	-.058	.444	.373	.474	.160	.490	.330	.605	.622	.061

8.4 (Cont'd) CORRELATION COEFFICIENTS BETWEEN ELEMENTS OF TEST BATTERY AND OUTSIDE VARIABLES

EXPERIMENTAL AND CONTROL			OUTSIDE VARIABLES								
			Instructor's Rating	English Usage	Spelling T.S.	ACE (Q) Score	ACE (L) Score	High School GPA	High School Math. GPA	All Univ. Grade Pred.	F.L. Grade Prediction
PRETEST	Minimal Pairs		-.025	.215	.063	.111	.021	.131	.057	-.003	-.025
	Oral Compositions		.066	.449	.313	.322	.372	.431	.357	.429	.407
	Coop. List. Test	Part 1	.110	.450	.256	.213	.307	.354	.227	.421	.425
		Part 2	.104	.107	-.034	.036	.116	.135	.106	.162	.273
		Part 3	-.011	.146	.160	.099	.100	.196	.037	.125	.170
	Gram. Comp-reh'n	Part 1	.070	.111	-.022	.215	.101	.200	.147	.101	.206
		Part 2	.062	.209	-.039	.199	.293	.273	.260	.240	.204
	Coop. French Test	Part 1	.226	.291	.192	.235	.329	.294	.200	.414	.359
		Part 2	.131	.224	.224	.124			.152	.407	.369
		Part 3	.152	.247	.234	.219	.204	.409	.306	.450	.402

EXPERIMENTAL AND CONTROL			OUTSIDE VARIABLES								
			Instructor's Rating	English Usage	Spelling T.S.	ACE (Q) Score	ACE (L) Score	High School GPA	High School Math. GPA	All Univ. Grade Pred.	F.L. Grade Prediction
POSTTEST	Minimal Pairs		-.122	.110	.008	.014	-.025	-.011	-.094	-.102	-.035
	Oral Compositions		-.016	.267	.140	.324	.201	.421	.341	.394	.338
	Coop. List. Test	Part 1	.054	.361	.273	.263	.203	.207	.317	.434	.449
		Part 2	.132	.176	.005	.184	.130	.262	.224	.263	.264
		Part 3	.127	.244	.241	.200	.300	.297	.106	.304	.301
	Gram. Comp-reh'n	Part 1	.039	.342	.164	.200	.306	.422	.342	.464	.44
		Part 2	.004	.125	-.030	.169	.070	.244	.158	.173	.159
	Coop. French Test	Part 1	.220	.340	.240	.300	.339	.302	.309	.500	.452
		Part 2	.206	.201	.207	.236	.200	.336	.230	.440	.412
		Part 3	.086	.329	.246	.249	.250	.469	.359	.525	.493

8.4 (Cont'd) CORRELATION COEFFICIENTS BETWEEN ELEMENTS OF TEST BATTERY AND RESPONSES TO STUDENT QUESTIONNAIRE

EXPERIMENTAL AND CONTROL			STUDENT QUESTIONNAIRE									
			Question No.									
			1	2	3	4	5	6	7(a)	7(b)	7(c)	7(d)
PRETEST	Minimal Prs.		.190	.144	.081	-.028	.132	.209	.109	.165	.133	-.070
	Oral Comp.		.328	.100	.159	.046	.109	.088	.047	.083	.172	.143
	Coop. List. Test	Pt.1	.146	.046	.193	.071	.084	.270	.102	-.069	.121	-.186
		Pt.2	.218	.221	.116	.027	.180	-.028	.142	-.199	.042	.031
		Pt.3	.141	.209	.121	.107	.041	.252	.048	-.076	.139	-.130
	Gram Comp-reh'n	Pt.1	.150	.280	.222	.037	.211	.059	-.027	.013	-.003	.026
		Pt.2	-.120	.121	.018	-.066	.008	.281	.226	-.073	.072	-.266
	Coop. French Test	Pt.1	.130	.016	.214	.009	.082	.116	.109	-.007	.008	-.108
		Pt.2	.328	.059	.267	.002	.138	.012	.026	.066	-.091	-.005
		Pt.3	.283	.040	.267	-.144	.247	-.069	.056	-.061	.010	-.000

EXPERIMENTAL AND CONTROL			STUDENT QUESTIONNAIRE									
			Question No.									
			1	2	3	4	5	6	7(a)	7(b)	7(c)	7(d)
POSTTEST	Minimal Prs.		-.150	.034	.004	-.120	.065	.156	.168	-.138	.145	-.205
	Oral Comp.		.328	.117	.182	.020	.377	.331	.055	-.148	.214	-.105
	Coop. List. Test	Pt.1	.212	.104	.205	-.021	.061	.048	.000	.045	.051	-.124
		Pt.2	.150	.165	.121	-.006	.278	.134	.115	-.237	.182	-.039
		Pt.3	.131	.161	.083	.144	.236	.258	.217	.006	-.000	-.279
	Gram. Comp-reh'n	Pt.1	.182	.102	.079	.054	.308	.068	-.013	-.053	-.096	-.014
		Pt.2	.180	.140	.167	.079	.291	.189	.192	-.174	.208	-.231
	Coop. French Test	Pt.1	.275	.038	.115	-.059	.239	-.019	.052	.066	.008	-.130
		Pt.2	.225	.045	.179	-.042	.038	-.057	-.006	.123	-.128	.013
		Pt.3	.361	-.000	.326	.005	.254	-.058	.050	-.005	-.005	-.040

8.4.1

CORRELATION COEFFICIENTS BETWEEN SKILL SCORES

PRETEST

EXPERIMENTAL

	Comprehension	Reading	Writing
Lingual	.726	.486	.514
Comprehension		.506	.648
Reading			.838

CONTROL

	Comprehension	Reading	Writing
Lingual	.770	.493	.557
Comprehension		.475	.513
Reading			.722

POSTTEST

EXPERIMENTAL

	Comprehension	Reading	Writing
Lingual	.741	.532	.573
Comprehension		.735	.762
Reading			.882

CONTROL

	Comprehension	Reading	Writing
Lingual	.658	.455	.653
Comprehension		.548	.649
Reading			.886

5.4.2 COMPARISON OF CORRELATION COEFFICIENTS

ENGLISH USAGE T.S. WITH SKILLS

		Speaking	Comprehension	Reading	Writing
PRETEST	Experimental	.370	.194	.218	.164
	Control	.399	.434	.443	.650
	|t| (oo d.f.)	.516	3.76 **	3.76 **	8.98 **
POSTTEST	Experimental	.165	.163	.266	.199
	Control	.498	.584	.383	.603
	|t| (oo d.f.)	4.66 **	7.43 **	4.54 **	7.36 **

SPELLING T.S. WITH SKILLS

		Speaking	Comprehension	Reading	Writing
PRETEST	Experimental	.168	.028	.130	.184
	Control	.303	.154	.324	.374
	|t| (oo d.f.)	3.47 **	1.79	3.02 **	[illegible].34 **
POSTTEST	Experimental	.045	.042	.199	.178
	Control	.366	.386	.349	.417
	|t| (oo d.f.)	5.00 **	5.39 **	2.40 *	3.89 **

8.4.3 CORRELATION COEFFICIENTS[1]

PRETEST SKILL SCORES WITH OUTSIDE VARIABLES

PRETEST

EXPERIMENTAL	Lingual	Comprehension	Reading	Writing
Instructor's Rating	.043	-.074	.213	.169
English Usage T.S.	.370	.194	.218	.164
Spelling T.S.	.168	.028	.130	.184
ACE (Q) Score	.161	.178	.236	.007
ACE (L)	.231	.306	.279	.309
High School G.P.A.	.318	.292	.250	.334
High School Math.G.P.A.	.208	.146	.233	.234
All Univ.Grade Pred.	.305	.302	.359	.444
F.L. Grade Prediction	.310	.273	.285	.409

CONTROL	Lingual	Comprehension	Reading	Writing
Instructor's Rating	.009	.022	.246	.009
English Usage T.S.	.399	.434	.443	.650
Spelling T.S.	.383	.154	.324	.374
ACE (Q) Score	.179	.264	.237	.018
ACE (L) Score	.263	.320	.471	.203
High School G.P.A.	.516	.426	.351	.303
High School Math .G.P.A.	.395	.296	.174	.204
All Univ. Grade Pred.	.488	.374	.519	.503
F.L. Grade Prediction	.490	.437	.474	.490

[1] For EXPERIMENTAL: $R_{.05} = .266$, $R_{.01} = .345$

For CONTROL : $R_{.05} = .314$, $R_{.01} = .405$

8.4.3 CORRELATION COEFFICIENTS

POSTTEST SKILL SCORES WITH OUTSIDE VARIABLES

POSTTEST

EXPERIMENTAL	Lingual	Comprehension	Reading	Writing
Instructor's Rating	-.140	.023	.149	.076
English Usage T.S.	.165	.163	.266	.199
Spelling T.S.	.045	.042	.199	.170
ACE (Q) Score	.350	.317	.356	.302
ACE (L) Score	.226	.200	.317	.280
High School G.P.A.	.357	.209	.364	.402
High School Math. G.P.A.	.254	.229	.371	.302
All Univ. Grade Pred.	.325	.312	.506	.409
F.L. Grade Prediction	.260	.225	.411	.471

CONTROL	Lingual	Comprehension	Reading	Writing
Instructor's Rating	.033	.020	.469	.030
English Usage T.S.	.490	.504	.523	.605
Spelling T.S.	.366	.306	.349	.417
ACE(Q) Score	.159	.351	.100	.213
ACE (L) Score	.237	.452	.444	.307
High School G.P.A.	.566	.619	.411	.490
H.S. Math. G.P.A.	.201	.460	.259	.346
All Unit. Grade Pred.	.360	.577	.542	.614
F.L. Grade Pred.	.211	.659	.512	.507

B.4.4 CORRELATION COEFFICIENTS

PRETEST SKILL SCORES WITH RESPONSES TO STUDENT QUESTIONNAIRE

EXPERIMENTAL				
Question No.	Speaking	Comprehension	Reading	Writing
1	.363	.006	.063	.336
2	.171	.261	.145	-.268
3	.114	.234	.295	.444
4	-.009	-.162	.095	-.213
5	.229	.064	.085	.169
6	-.082	.049	.252	-.228
7(a)	-.007	.116	.092	-.010
7(b)	-.138	-.204	.017	-.137
7(c)	.203	.041	.004	-.022
7(d)	-.049	-.130	.113	-.109

CONTROL				
Question No.	Speaking	Comprehension	Reading	Writing
1	.428	.116	.210	.246
2	.096	.259	-.108	-.211
3	.323	.189	.024	.042
4	-.054	.030	-.089	-.363
5	.186	.232	.073	.274
6	-.050	.057	.058	-.172
7(a)	.138	.197	.184	.064
7(b)	-.118	-.020	-.068	-.050
7(c)	.123	-.084	.075	-.004
7(d)	-.132	.254	-.203	-.011

8.4.4 CORRELATION COEFFICIENTS

POSTTEST SKILL SCORES WITH RESPONSES TO STUDENT QUESTIONNAIRE

EXPERIMENTAL				
Question No.	Speaking	Comprehension	Reading	Writing
1	.360	.298	.250	.278
2	-.219	.114	.146	-.003
3	.072	.121	.246	.058
4	-.132	-.048	.122	.201
5	.311	.317	.202	.124
6	-.366	-.408	.152	-.214
7(a)	.054	-.006	-.010	-.030
7(b)	-.164	-.144	.177	-.123
7(c)	.239	.106	-.024	-.055
7(d)	.121	-.135	-.177	-.043

CONTROL				
Question No.	Speaking	Comprehension	Reading	Writing
1	.180	.246	.232	.258
2	.056	.140	-.114	.107
3	.214	.169	-.189	.024
4	-.250	-.001	-.284	-.258
5	.256	.381	.334	.245
6	-.100	-.127	.092	-.179
7(a)	.138	.323	.199	.181
7(b)	-.196	.232	-.131	-.057
7(c)	.170	.236	.148	.021
7(d)	-.097	-.277	-.219	-.158

8.5.1 CONTINUANCE DATA

8.5.1.1

TABULATION OF STUDENTS WHO TOOK SECOND-YEAR COURSES IN FRENCH (COUNTS TAKEN OVER ALL STUDENTS WHO ENROLLED IN FRENCH 101)

	Went on to Second Year	Stopped before Second Year
Experimental	14	82
Control	15	147

Chi-Square equals 1.718 with 1 d.f.

8.5.1.2

TABULATION OF STUDENTS WHO TOOK SECOND-YEAR COURSES IN FRENCH (COUNTS TAKEN OVER ONLY THOSE STUDENTS WHO ENROLLED IN FRENCH 103)

	Went on to Second Year	Stopped before Second Year
Experimental	14	31
Control	15	58

Chi-Square equals 1.685 with 1 d.f.

8.5.1.3

TABULATION OF STUDENTS WHO TOOK A GIVEN NUMBER OF COURSES BEYOND FRENCH 103 (COUNTS TAKEN OVER THOSE STUDENTS WHO ENROLLED IN FRENCH 103)

	No. of Courses Taken beyond 103			
	0	1	2	3 or more
Experimental	31	4	3	7
Control	58	4	5	6

Chi-Square equals 2.325 with 3 d.f.

8.5.2 CONTINUANCE DATA (Cont'd)

8.5.2.1

ANALYSIS OF VARIANCE TABLE FOR COMPARISON OF MEAN CREDIT HOURS TAKEN BEYOND FRENCH 103 (A LOGARITHMIC TRANSFORMATION WAS USED, AND AVERAGE IS TAKEN OVER ALL STUDENTS WHO ENROLLED IN FRENCH 101)

SOURCE	S.S.	d.f.	M.S.
Between Methods	.123	1	.123
Within Methods	20.342	256	.079

F equals 1.557 with (1,256) d.f.

8.5.2.2

ANALYSIS OF VARIANCE TABLE FOR COMPARISON OF MEAN CREDIT HOURS TAKEN BEYOND FRENCH 103, WITH AVERAGE TAKEN OVER ONLY THOSE STUDENTS WHO ENROLLED IN FRENCH 103

SOURCE	S.S.	d.f.	M.S.
Between Methods	.224	1	.224
Within Methods	12.849	116	.111

F equals 2.02 with (1,116) d.f.

8.5.2.3

TABULATION OF STUDENTS WHO TOOK A GIVEN NUMBER OF CREDIT HOURS BEYOND FRENCH 103 (COUNTS ARE TAKEN OVER ONLY THOSE STUDENTS WHO DID IN FACT TAKE FRENCH 103)

	No. of Credit Hrs. Taken beyond Fr. 103			
	0	1-3	4-8	9 or more
Experimental	31	4	6	4
Control	58	5	6	4

Chi-square equals 1.768 with 3 d.f.

B.5.3 CONTINUANCE DATA

TABULATION OF STUDENTS WHO ELECTED FRENCH AS THEIR MAJOR FIELD AFTER HAVING STUDIED UNDER ONE OF THE TWO METHODS

	Elected French	Did not Elect French
Experimental	7	145
Control	2	200

Chi-square equals 4.58* with 1 d.f.

8.6 STUDENT QUESTIONNAIRE

Third Run

MEAN RESPONSES AND STANDARD DEVIATIONS

Question No.	EXPERIMENTAL Mean	EXPERIMENTAL S.D.	CONTROL Mean	CONTROL S.D.	't'
1	2.27	.616	2.50	.592	1.78
2	2.31	.535	2.28	.591	.279
3	2.84	.533	2.85	.421	.136
4	2.16	.494	2.10	.663	.521
5	3.33	.789	3.35	.654	.154
6	3.11	.705	2.60	.735	3.37 **
7(a)	3.51	.736	3.38	.940	.764
7(b)	2.27	.840	2.35	.963	.415
7(c)	2.96	.736	2.75	.829	1.30
7(d)	1.24	.539	1.52	.836	1.98 *

8.6.1

PERCENTAGE RESPONSE TO STUDENT QUESTIONNAIRE

FIRST AND SECOND RUNS

QUESTION Number		First Run				Second Run		First and Second Run	
		A		B					
		Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.
A	a	7.8	8.6	25.0	41.7			10.1	14.3
	b	5.2	1.7	-0-	16.6			4.5	4.3
	c	87.0	89.7	75.0	41.7			85.4	81.4
1	a	21.1	7.6	16.7	4.2	10.0	23.5	17.8	11.1
	b	26.0	32.2	50.0	33.3	22.5	27.5	27.1	31.4
	c	31.2	28.0	25.0	33.3	25.0	17.0	28.7	25.8
	d	20.7	32.2	8.3	29.2	42.5	32.0	26.4	31.7
2	a	3.9	0.8	16.7	-0-	2.5	-0-	4.6	.5
	b	24.7	42.8	33.3	62.5	22.5	19.0	24.8	39.5
	c	71.4	56.4	50.0	37.5	75.0	81.0	70.6	60.0
3	a	13.1	22.7	8.3	25.0			12.4	23.1
	b	45.5	55.5	66.7	45.7			48.3	53.9
	c	31.2	17.6	25.0	21.0			30.3	18.1
	d	10.2	4.2	-0-	8.3			9.0	4.9
4	a	54.6	48.6	33.3	41.7			51.7	47.5
	b	37.4	47.0	66.7	54.1			41.4	48.2
	c	8.0	4.4	-0-	4.2			6.9	4.3
5	a	41.3	49.2	41.6	69.5	30.0	51.0	37.8	52.1
	b	17.3	24.1	16.7	13.1	30.0	10.5	21.2	19.3
	c	21.4	20.7	25.0	8.7	17.5	30.0	20.5	21.4
	d	20.0	6.0	16.7	8.7	22.5	8.5	20.5	7.2
6	a	23.4	22.0	41.6	37.5			25.9	24.6
	b	28.6	17.8	16.7	20.8			26.9	18.3
	c	48.0	60.8	41.7	41.7			47.2	57.1
7	a	10.4	12.7	-0-	13.6			9.0	12.9
	b	36.4	38.2	16.7	36.4			33.7	37.9
	c	19.5	15.3	41.6	13.6			22.5	15.0
	d	33.7	33.8	41.7	36.4			34.8	34.2
8	a	6.5	16.2	8.3	16.7	12.5	8.5	8.6	14.4
	b	36.3	32.4	16.7	29.2	50.0	40.5	38.7	34.1
	c	33.8	44.5	50.0	41.7	30.0	34.0	34.0	41.6
	d	20.8	4.3	25.0	12.4	7.5	13.0	17.0	7.5
	e	2.6	2.6	-0-	-0-	-0-	4.0	1.7	.4
9	a	56.6	16.8	58.4	20.8	65.0	15.0	59.3	16.9
	b	40.8	62.2	41.6	54.2	35.0	63.5	39.1	61.5
	c	2.6	21.0	-0-	25.0	-0-	21.5	1.6	21.6
Ave. 10	a	1.6	1.9	1.8	1.5	1.6	1.8	1.6	1.7
	b	2.6	2.6	2.4	2.5	2.9	2.5	2.7	2.5
	c	2.2	2.3	1.9	2.1	1.9	2.4	2.1	2.3
	d	3.7	3.4	3.8	3.3	3.4	3.4	3.7	3.4
	a	53.4	54.1	30.0	58.4	91.5	69.0	60.5	58.5
	b	27.7	35.1	60.0	33.3	4.5	28.0	26.3	33.1
	c	18.9	10.8	10.0	8.3	8.5	3.0	13.2	8.4

APPENDICES

9 APPENDICES

9.2.1.1.2.1 SCORER'S SHEET

Minimal Pairs Test

First and Second Runs

April 1959

I. MINIMAL SOUND CONTRASTS

1. dos, doux
2. mes, mis
3. fée, feu
4. sire, sur
5. bouche, bûche
6. peu, pu
7. côte, cotte
8. cale, colle
9. et, est
10. mort, meurs
11. serre, soeur
12. balle, belle
13. beau, bon
14. lin, lent
15. dont, d'un
16. pain, pan
17. Louis, lui
18. fit, fille
19. poule, boule
20. marin, malin
21. faire, verre
22. été, aider
23. imagine, machine
24. aimer, aîné
25. assure, azur
26. âne, bagne
27. morte, motte
38. laisse, leste
29. drôle, rôle
30. attend, apprend

9.2.1.1.2.2 QUESTION-ANSWER TEST
(Scorer's Sheet)
First and Second Run

	Comprehension	Vocabulary	Fluency	Grammar	TOTAL
1. Comment vous appelez-vous?					
2. Etes-vous un garçon ou une petite fille?					
3. Qu'est-ce que vous faites quand vous avez faim?					
4. Qu'est-ce que vous buvez avec le petit déjeuner?					
5. A quelle heure vous êtes-vous couché hier soir?					
6. Quelle est la capitale des Etats-Unis?					
7. Est-ce que Seattle se trouve dans le sud des Etats-Unis?					
8. Quel jour est-ce aujourd'hui?					
9. Combien de mois est-ce qu'il y a dans l'année?					
10. Comment aimez-vous passer le samedi soir?					

9.2.1.2.1.1.1

SCRIPT FOR GRAMMAR COMPREHENSION TEST

Third Run

For this part of the test, you will simply record your answers on the sheets which have been handed to you. Please do not open the printed answer sheets until I tell you to do so. The first questions are to be answered on the dittoed sheets, that is, the sheets in purple ink. First, write your number in the square you will find in the upper left hand corner of your test sheet. Write your number there.

Now I am going to read to you a series of sentences, each one of which will contain a noun. You must listen and determine whether the noun is masculine or feminine. Then check on your answer sheet: M for masculine or F for feminine.

A word of warning before we begin. Some of these sentences will sound completely unfamiliar to you. That is, you will probably not understand the total meaning of them. However, if you listen carefully, you will probably be able to tell, or at least be able to make a very good guess as to whether you heard a masculine noun or a feminine noun.

Now to repeat the instructions. You are going to hear ten sentences; you are to determine whether the noun is masculine or feminine, then check on your answer sheet either M for masculine or F for feminine. The best way of doing this is to write an X in the square underneath M or F, masculine or feminine. For example, if you hear: "Voici une belle peinture," you would check F since "une belle peinture" is feminine. Here we go.

1. Nous avons mangé de bonnes pommes aujourd'hui.
2. Cette nouvelle robe est faite de laine.
3. Voici du pain; en voulez-vous?
4. Nous allons parler des affaires françaises.
5. Nous nous intéressons au travail des paysans.
6. Cela te crispe, ma biche?
7. Aboulez-moi ce flingue.
8. La règle découle d'elle-même.
9. Délestez-le de son fardeau.
10. Le gros bedon se dévergondait.

The next part of the test is similar. This time, however, you are to distinguish between singular and plural nouns. For example, if you hear the sentence: "Le pain est bon," you would check S for singular since "le pain" is singular. Ready for the first sentence?

9.2.1.2.1.1.1 Script for Grammer Comprehension Test (Cont'd)

1. Partout nous avons mangé des choses excellentes.
2. Nous aimons boire du bon vin.
3. Avez-vous visité un grand magasin à Paris?
4. J'ai fini mes leçons avant minuit.
5. Ces garçons sont plus âgés que moi.
6. Il saute à la perche.
7. Les lierres s'y nouent.
8. Ne lâchez point cette proie.
9. Tu vois ces paniers percés?
10. Vous raisonnez comme une pantoufle.

For the third part of the test, you will again hear a series of sentences. This time you will listen not for the noun but for the verb to determine whether it is in the present tense or not. If the verb is in the present tense, check P. If it is not, check NP. For example, in the sentence: "Nous avons mangé du pain," the verb is not present so you would check NP. Here we go.

1. Qu'est-ce que vous faites aujourd'hui?
2. Jeanne d'Arc est née à Domremy.
3. Sa maladie n'était pas grave.
4. Est-ce que vous finissez votre travail?
5. Nous allons souvent au cinéma.
6. La sotte baie aux corneilles.
7. Il nous empestait de ses contes.
8. Il se rongeait les ongles.
9. Il gèle à pierre fendre.
10. Vous vous êtes paré des plumes du paon.

The fourth part of the test is similar to the third part. This time, however, you must check whether or not the verb is in the Compound Past, the passé composé. If it is, check PC. If it is not, check NPC. For example, if you hear: "J'ai parlé aux étudiants," you would check PC, passé composé, since "ai parlé" is passé composé. Here we go.

1. Robert m'a donné son adresse.
2. Le train arrive en gare vers huit heures.
3. Mes parents allaient souvent en Europe.
4. Nous nous sommes dépêchés pour finir la leçon.
5. Ce matin je suis parti pour l'école de bonne heure.
6. On ne m'en empêchait jamais.
7. Il lui a défait la cravate.
8. On l'a fichu dedans.
9. Il a écrasé la révolte au nid.
10. Vous y nichez.

9.2.1.2.1.1.2

ANSWER SHEET_____GRAMMAR COMPREHENSION TEST

Third Run

STUDENT'S NUMBER

STUDENT'S NAME____________________

DO NOT MARK

INSTRUCTOR'S NAME____________________

DATE__________PRETEST__________

POSTTEST__________

PART 1

1.	F	M	1.	S	P	1.	P	N-P	1.	PC	N-PC
2.	F	M	2.	S	P	2.	P	N-P	2.	PC	N-PC
3.	F	M	3.	S	P	3.	P	N-P	3.	PC	N-PC
4.	F	M	4.	S	P	4.	P	N-P	4.	PC	N-PC
5.	F	M	5.	S	P	5.	P	N-P	5.	PC	N-PC
6.	F	M	6.	S	P	6.	P	N-P	6.	PC	N-PC
7.	F	M	7.	S	P	7.	P	N-P	7.	PC	N-PC
8.	F	M	8.	S	P	8.	P	N-P	8.	PC	N-PC
9.	F	M	9.	S	P	9.	P	N-P	9.	PC	N-PC
10.	F	M	10.	S	P	10.	P	N-P	10.	PC	N-PC

9.2.1.2.2.1

SCRIPT FOR MINIMAL PAIRS TEST

Third Run

This is the first and oral part of the comparative test for French 102. Before we begin the test, please record your number. Do not give your name or class section; simply say "my number is 14" or 23 or whatever it happens to be. Go ahead and record your number now.

The first part of this test concerns pronunciation. I am going to read a series of French words, two at a time, and you are to repeat what you hear. That's all there is to it; just repeat what you hear. If I say: faire, mère, you must simply repeat: faire, mère. Here we go.

1. pére, terre
2. palme, calme
3. pain, faim
4. peur, beurre
5. lève, rêve
6. rare, car
7. roue, chou
8. gnole, rôle
9. coure, coûte
10. sac, sape
11. pape, paf
12. cape, cab
13. foule, four
14. bar, bac
15. mer, mèche
16. signe, cire
17. péteur, pinteur
18. feinte, fête
19. tinte, tante
20. feinte, fûtes
21. quinte, queute
22. blé, bleu
23. chevaux, cheveux
24. nu, noeud
25. marin, mari
26. parrain, paraît
27. marin, marée
28. bain, boeufs
29. parrain, parent
30. filin, filon

9.2.1.2.2.2.1 TEST SCRIPT

ORAL COMPOSITION TEST

Third Run

Now for the second part of the test, you will be asked to record three oral compositions. Each composition will have the length exactly of one minute. Before each there will be a 30-second period during which you will be able to prepare mentally what you will then record.

On the first composition you will be asked to say a few things about yourself. However, do not state your name. Say in French anything that occurs to you. State your occupation; say that you are a student; you may mention the subjects you study; your address; you may speak of your family, or the friends you live with; you may state your interests, your likes and dislikes; anything of a personal nature, except, I repeat, your name. Do not include your name in this oral statement about yourself. Now think of the subject for about 30 seconds. You will be given a signal when to begin recording. When the signal is given your microphones will be active for exactly one minute. Try to say as many things in French during that one minute as you can. Now you have thirty seconds to think of what you want to say. Begin now.

As the second one-minute oral composition, you will be asked to make a few statements about France and the French people. You will make these statements, of course, in French. Try to recall the various features of France and the various habits, peculiarities, of French people, you have learned in your course. Again you will have 30 seconds to prepare your thoughts. Then you will be given a signal and for one minute you will speak in French; talking about France and the French. Now take 30 seconds to prepare.

Begin your recording now.

Now you are going to be shown a picture which will be projected on the screen for exactly one minute. After looking at the picture for one minute, you will go back to your microphones and describe it in French. You will see objects and people in it, possibly people doing certain things, certain objects associated with other objects. You will want to observe these very carefully and then during the one minute at your disposal, try to describe the picture, the people in the picture, objects, etc.; whatever that picture recalls to you in French. Begin your recording now.

9.2.1.2.2.2.2

ORAL COMPOSITION TEST
Scorer's Sheet

Third Run

STUDENT'S NUMBER	COMP. NO.	VOCAB.	INTONATION	GRAMMAR	FLUENCY	TOTAL	GRAND TOTAL
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						

9.2.2.1

QUESTIONNAIRE FOR FRENCH 102 CLASSES

First Run

Student's Name__________Instructor's Name__________ Section____

We would like to know how you came to enroll in the section you are now in. Please check one of the following alternatives:

a.______I selected this section because of the method that is used in it.
b.______I was advised to select this section because of the method that is used in it.
c.______I enrolled in this section without previous knowledge of the method that is used in it.

IF YOU HAVE CHECKED EITHER "a" OR "b", ANSWER THE FOLLOWING QUESTION:

I selected (or I was advised to select) this section

because____

____

Answer each of the following questions by checking only one of the alternatives listed.

1. Which of the following do you think would be the most rewarding experience for you?

a.______to be able to understand and to enjoy a good French movie or a play without English subtitles
b.______to be able to read French writings in the original
c.______to be able to make purchases and to shop generally in France, using French only
d.______to make friends with a French student and be able to correspond with him in his native language

2. In order to master a foreign language which of the following do you think is most important?

a.______to know as many words as possible
b.______to have a precise knowledge of how words are put together to form a sentence
c.______to be able to put together the words one knows without hesitation

3. How much do you think that your study of French has contributed to your knowledge of English?

a.______a great deal
b.______some
c.______very little
d.______none

4. Judging only by what you have learned in this course, how great do you think the French contribution to American civilization has been?

a.______considerable
b.______moderate
c.______negligible

5. With as much French as you have learned so far, which one of the following things could you do most readily?

a.______write a letter in French to a travel agency, asking for information
b.______strike up a conversation with a fellow traveler who speaks only French
c.______read a mystery story written in French
d.______listen to your favorite kind of radio program broadcast in French

6. While you have been taking this course, have you read anything concerning French culture which was not assigned in class?

a.______several items
b.______one item
c.______nothing

7. If you were free from both college requirements and from conflicting obligations, which of the following would you be most apt to do?

a.______stop studying French immediately
b.______continue through the whole first year
c.______go beyond that to more advanced work
d.______continue to the point of mastery of the language

8. For the same amount of credit hour time, how much do you think you have accomplished in this course?

a.______more than in any other college course I have taken
b.______more than in most of the college courses I have taken
c.______about as much as in any other college course I have taken
d.______less than in most of the college courses I have taken
e.______less than in any other college course I have taken

9. How much do you think that attending the language lab has helped you in doing the work required for this course?

a._____considerably
b._____to some extent
c._____not at all

THE FOLLOWING QUESTION IS TO BE ANSWERED IN A DIFFERENT MANNER FROM THOSE PREVIOUSLY ASKED. PLEASE READ THE INSTRUCTIONS CAREFULLY.

10. Below are listed the four basic language skills that are taught in a beginning foreign language course. From your own personal opinion, how would you arrange these skills in the order of most to least importance? In the list below place a "1" opposite the skill you judge to be of most importance, "2" opposite that of second importance, "3" opposite that of third importance, "4" opposite that of fourth or least importance. (When you have finished answering this question then, there should be a number in each of the four blanks.)

a._____Understanding the spoken word
b._____Reading
c._____Speaking
d._____Writing

ANSWER THIS LAST QUESTION ONLY IF YOU HAVE STUDIED A FOREIGN LANGUAGE BEFORE

11. Do you think that the method used in this course is

a._____superior to
b._____about as effective as
c._____inferior to

the methods by which you were taught previously?

9.2.2.2

QUESTIONNAIRE FOR FRENCH 102 CLASSES

Third Run

Student's Name________________ Instructor's Name______________

With as much French as you have learned so far, how readily would you do the following things (place a check mark opposite one of the four alternatives of each of the following questions):

1. Write a letter to a French university in French asking information

   a.__without hesitation or doubt of my doing a good job
   b.__with some doubt as to my ability to perform well
   c.__with serious doubt as to my ability to perform adequately
   d.__with what I know now, I wouldn't attempt it at all.

2. Strike up a conversation with a person who speaks only French

   a.__without hesitation or doubt of my doing a good job
   b.__with some doubt as to my ability to perform well
   c.__with serious doubt as to my ability to perform adequately
   d.__with what I know now, I wouldn't attempt it at all

3. Read an official letter from a French university in French
   a.__without hesitation or doubt of my doing a good job
   b.__with some doubt as to my ability to perform well
   c.__with serious doubt as to my ability to perform adequately
   d.__with what I know now, I wouldn't attempt it at all

4. Listen to a radio broadcast in French

   a.__without hesitation or doubt of my doing a good job
   b.__with some doubt as to my ability to perform well
   c.__with serious doubt as to my ability to perform adequately
   d.__with what I know now, I wouldn't attempt it at all

5. For the same amount of credit hour time, how much do you think you have accomplished in this course?

9.2.2.2 Questionnaire for French 102 Classes (Cont'd)

a.__more than in any other college course I have taken
b.__more than in most of the college courses I have taken
c.__about as much as in any other college course I have taken
d.__less than in most of the college courses I have taken
e.__less than in any other college course I have taken

6. How much do you think that attending the language lab has helped you in doing the work required for this course?

a.__considerably
b.__to some extent
c.__very little
d.__not at all

7. Below are listed the four basic language skills that are taught in a beginning foreign language course. From your own personal opinion, how would you arrange these skills in the order of most to least importance? In the list below place a "1" opposite the skill you judge to be of most importance, "2" opposite that of second importance, "3" opposite that of third importance, "4" opposite that of fourth or least importance. (When you have finished answering this question then, there should be a number in each of the four blanks.)

a.____Understanding the spoken word
b.____Reading
c.____Speaking
d.____Writing

9.2.3 FACULTY OPINION SURVEY

QUESTIONNAIRE

1. Academic rank: ______________________________

2. Familiarity with Images de France (please check one):

___ I have used it in class for several semesters (quarters)
___ I have used it in class for one semester (quarter)
___ I have not used it myself, but have observed classes several times in which it was used
___ I have observed it once

3. Institution at which employed: (check one)

University______ College________ Teacher's College___
High School______ Junior High______ Elementary School___

4. Is Images de France now being used at your institution?

Yes_____ No_____

If YES: How long has it been used?______________________
Do you plan to continue using it?_______________

If NO: Has it ever been used, and how long?____________
If it has ever been used, what were the principal reasons for its discontinuance?_______

5. Do you believe that Images de France is: (check one)

Superior to any other teaching method ______
Superior to most other methods ______
As effective as any other method ______
Less effective than most other methods ______
Less effective than any other method ______

6. In your opinion, to what level is Images de France best suited?

College ______ High School_______
Elementary School_____ Junior High_______

9.2.3 Faculty Opinion Survey Questionnaire (Cont'd)

7. What do you consider the most valuable feature of Images de France?

8. What do you consider its most obvious shortcoming?

9. Suggestions for improvement:

10. Comments:

11. It would be appreciated if you would list the names and addresses of teachers known to you personally who have some familiarity of Images de France to whom this questionnaire might be sent.

____

____

____

____

____